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THE EFFECT OF ADDING ORANGE JUICE TO THE DIETS OF UNDERWEIGHT CHILDREN[1]

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Among the most interesting and dramatic recent developments of biological science has been the rapid advance in our knowledge of the nutritional requirements of animals. Current literature is filled with accounts of animal feeding experiments which demonstrate the disastrous effects resulting when one or more of the dietary essentials are lacking. Very few attempts have been made, however, to test, under experimentally controlled conditions, the applicability of these results to human nutrition. Such studies as have been reported are, for the most part, related to problems of infant feeding.

EFFECT OF VITAMIN PREPARATIONS ON GROWTH OF INFANTS

Eddy (1) obtained a consistent gain in the weights of malnourished infants with administration of a vitamin B preparation. Hess (2) and Byfield, Daniels and Loughlin (3) likewise observed a similar result when daily amounts of 45 cc. of orange juice were used. Chick and Dalyell (4) in Vienna found raw turnip juice, orange juice, or neutralized lemon juice efficacious in promoting growth. This stimulation of growth by additions of orange, lemon, and vegetable juices was ascribed by Hess and Chick and Dalyell to increased amounts of vitamin C, but Byfield, Daniels and Loughlin demonstrated that in the case of orange juice at least the potency was due to vitamin B content.

McCarrison (5) applied the knowledge gained from careful observation of the symptoms displayed by animals on various types of inadequate diets to diagnosis in his clinical practice. Interesting reports of cases of chronic gastro-intestinal diseases yielding to dietary treatment are given in his book "Studies in Deficiency Diseases."

[1] We wish to acknowledge the courtesy of Dr. Francis M. Baldwin in permitting us to incorporate some of the results of a study on "Variations in Pulse Rates of Children" carried out under his direction; also to express our appreciation to Ardis Pettigrew and Lucile Draper for assistance in weighing the diets.

THE UNDERWEIGHT CHILD A PROBLEM OF HUMAN NUTRITION

The underweight child is a very important problem of human nutrition at present. Physical defects, lack of parental control, fatigue, ignorance, and poverty are supplementary causes of this condition so prevalent among all groups of children. In very many cases, however, the evidence points to a relation between the quality of a child's diet, as determined by the newer standards, and his state of nutrition. Further study of the diets of underweight children is of value in giving information concerning the most common dietary faults, the relation between these dietary deficiencies and physical unfitness, and the most effective methods of correcting bad dietary habits.

With this in view a critical study was made of the diets of a group of persistently underweight children in the Welch Public School of Ames. As was expected most of the diets contained very little fresh fruit and vegetables. The remarkable effect of orange juice on the weight curves of infants reported by Byfield, Daniels and Loughlin (3) suggested the possibility that this fruit might have a similar effect if added to the diets of *older* children.

PROCEDURE

Selection and examination of children. With the advice of the Public Health Nurse, Ruth Clough, fourteen subjects for the experiment were chosen from the children in the first five grades (including kindergarten) who had shown little or no improvement as a result of group instruction in health habits.

Through the coöperation of Dr. Henske of Iowa State College Hospital and Miss Clough physical examinations were given nine of the children. The other five were not examined because of parental objection.

Daily food consumption. Home calls were made to acquaint the parents with the nature of the experiment. Each mother was requested to reserve portions of food during an entire day at the beginning and at the close of the experimental period, which were duplicates of the amounts eaten by the child. This food was then weighed by one of the graduate students who assisted in the work. No criticisms of the diet were offered and no effort was made to change the child's habits in any way.

Administration of orange juice. Beginning February first, 45 cc. of orange juice were given each child daily at 11 a.m. Friday the children received two oranges to eat Saturday and Sunday at noon. This program was continued until April twenty-fifth with the exception of a break during the last week in March at the time of the spring vacation. On April twenty-fifth the orange juice was discontinued for a period of three weeks and resumed again May sixteenth for the two weeks remaining before school closed. At two different times the amount of orange juice was doubled (90 cc.) for one week, but, as the results did not warrant the change, it was discontinued.

All children in the group received at least a pint of milk daily with the exception of the last three weeks when delivery of milk at school was discontinued. At that time four of the children received no fresh milk.

TABLE I

Description of the 14 subjects of the experiment

NAME	GRADE	AGE	HEIGHT	WEIGHT	NORMAL WEIGHT	UNDERWEIGHT
						per cent
*T. T.	K	5	40	33	37	10.8
*R. W.	K	5	44	40	45	11.1
M. R.	K	5	46	43	48	10.4
L. T.	1	8	50	49	57	14.0
M. G.	1	8	47	46	51	9.9
*P. F.	1	6	46	43	49	12.0
A. T.	2	7	48	45	52	13.4
*E. T.	3	9	50	51	60	15.0
*F. B.	3	8	49	49	57	14.0
D. B.	3	8	53.5	57	66	13.6
*R. C.	4	9	54	60	70	14.2
R. K.	4	9	52	56	64	12.5
R. F.	4	9	49	50	56	10.7
F. D.	3	13	56	69	80	13.7
Average.....						12.5

* Boy.

Results of medical examinations. Medical examinations showed enlarged tonsils, adenoids, palpable cervical glands, stribismus, ear trouble, and thyroid deficiency. Of the nine children examined one had six defects; one, five defects; five, three defects; one, two defects; and only one had no defect.

The high percentage of absences from school in this group compared with the average for all the children confirmed the statement of the school nurse that the underweight children were especially susceptible to colds, tonsillitis, and any disease epidemic in the school.

Relation between pulse rate and condition of nutrition. In connection with a research problem in physiology, data were collected showing variations of pulse rate with conditions of nutrition. In the three age groups, 5–6 years, 9–10 years, and 13–15 years, typical examples of normal, of underweight, and of overweight boys and girls were selected. Their pulse rates were taken from three to five times during a period of one month. The average rate of the normal children was 87, of the underweights 82, and of the overweights 74. Judging from these results abnormal conditions of nutrition resulting in either overweight or underweight are accompanied by a lowering of the pulse rate. Peterson and Walter (6) in a series of 2500 observations on 1200 subjects found a low pulse rate associated with a low level of metabolism. This conclusion applied to results obtained by us would indicate a metabolism below normal in the case of the underweight child and a still greater reduction in that of the overweight.

It is interesting to note that two members of the orange juice group, R.C. (boy) and D.B., who made unusual gains during the experimental period had pulse rates of 96 and 90 respectively. On the other hand, F.B. and R.K. of the same age, members of the group who made no gains had rates of 70 and 81 respectively.

Study of dietaries of the children. The total food consumption for one day at the beginning and at the close of the experimental period is given in table II.

TABLE II

Daily food consumption

	CAL.	PROT.	Ca.	P.	Fe.	VIT.	DEFICIENCIES
T. T.							
January	1157	51.7	1.103	1.092	0.006	C-low	Cal. Fe. and Vit. C
June.....	1138	43.9	0.543	0.7154	0.009	O.K.	Calories and P.
Requirements	1490	40.0	0.368	0.768	0.008		
A.T.							
January	1725	71.0	1.189	1.315	0.008	C-low	Vit. C.
June.....	1444	52.7	0.677	0.874	0.010	O.K.	Cal.
Requirements	1660	42.0	0.386	0.806	0.008		
L. T.							
January	1550	50.8	0.688	1.178	0.0064	All vit. low	Cal. Fe. *all* Vit.
June.....	1464	45.5	0.417	0.744	0.0082	B-C low	Vit. B. and C. Cal. P.
Requirements	1815	42.0	0.386	0.806	0.0084		Vit. A.
M. R.							
January	2006	84.7	1,563	1.996	0.0178	C-low	Vit. C
June.....	1509	51.0	1.407	1.213	0.0073	B-C-low	Vit. B and C
Requirements	1410	38.0	0.349	0.729	0.0076		
P. F.							
January	1677	38.3	0.562	0.679	0.0049	C-low	Prot. P. Fe. Vit. C
June.....	1855	59.9	0.908	1.143	0.0116	C-low	Vit. C.
Requirements	1600	42.5	0.391	0.816	0.0085		
R.F.							Cal. Prot. P.
January	1796	41.5	0.568	0.650	0.004	B-C-low	Fe. Vit. C and B
June.....	1778	57.7	0.827	1.086	0.01	C-low	Cal. Vit. C.
Requirements	1990	46.25	0.425	0.888	0.0092		
F.B.						B and C	Cal. Prot. P. Fe.
January	1631	41.9	0.736	0.830	0.005	low	Vit. B and C
June.....	618	21.5	0.226	0.415	0.006	*all* low	*Everything* low
Requirements	1920	47.5	0.437	0.912	0.0095		
F. D.						B and C	Cal. Prot. Fe.
January ..	1639	48.3	0.818	1.105	0.0058	low	Vit. B and C
June.....	991	19.4	0.151	0.422	0.0047	All deficient	*Everything* low
Requirements	3210	56.25	0.577	1.08	0.0112		
R. C.							
January	2851	89.0	1.272	1.82	0.0118	C-?	O. K.
June.....	1895	75.0	0.99	1.67	0.0129	O. K.	Cal.
Requirements	1920	50.0	0.46	0.96	0.01		

TABLE II—*Continued*

	CAL.	PROT.	Ca.	P.	Fe.	VIT.	DEFICIENCIES
E. T.							
January ...	1626	72.0	1.256	1.77	0.018	C-low	Cal. Vit. C.
June.....	1477	54.0	0.763	0.96	0.014	O.K.	Cal.
Require-ments....	2110	50.0	0.46	0.96	0.01		
R. W.							
January....	1393	44.2	0.686	0.981	0.0088	C-low	Cal. Vit. C.
June	1902	40.3	0.472	0.708	0.0061	C-low; B-?	P. Fe. Vit. B and C
Require-ments....	1490	40.0	0.368	0.768	0.008		
D.B.							
January....	1659	55.6	0.944	1.167	0.0089	C-low	Cal. Vit. C.
June.....	1764	57.8	0.949	1.233	0.0104	C-low	Cal. Vit. C
Require-ments....	1815	44.0	0.404	0.844	0.0083		
M.G.						B-low	Vit. B and C
January....	1120	31.3	0.573	0.565	0.0034	C-very low	Cal. Prot. P. Fe.
June.....	1639	43.0	0.411	0.742	0.0055	A, B, C low	Cal. P. Fe. Vit. B, C, and A
Require-ments....	1990	42.0	0.386	0.806	0.0084		
R. K.							
January....	1953	56.0	1.345	1.296	0.009	O.K.	O. K.
Require-ments....	1990	46.0	0.425	0.888	0.0092		

In these dietaries the milk given at school was included, but the orange juice was omitted. In estimating the vitamins, the tables in Rose's Laboratory Handbook of Dietetics were used. If four or more moderately rich sources of the vitamin were present in the diet; it was considered satisfactory in that respect. The caloric requirements were taken from the food requirements of children by Holt and Fales. (7) Since they are higher than the requirements as given by Sherman (8) the maximum figure of Sherman was used in computing the protein and mineral constituents.

DISCUSSION

Dietary Deficiencies. The most common deficiency was calories. In ten cases out of fourteen, the caloric intake was low. The other factors in which the diets were most commonly deficient were vitamins B and C and iron. Had it not been for the milk given at school to eight of these children, the calcium and vitamin A content would have been low in January. In June, when the milk at school was discontinued, there was an increased number of diets deficient in these two constituents. Protein was, in most of the diets, adequate or nearly so according to the standard given by Sherman. However, using the more generous figures

of Holt (7), 2.6 gr. protein per kilogram of body weight, the protein consumption was decidedly low.

Two diets are given to illustrate the type of food commonly eaten by school children:

	BREAKFAST	LUNCH	DINNER
F. D.	Cocoa—1 cup Bread—3 slices Oleomargarine	Beefsteak Potatoes Gravy	Cocoa Bread—2 slices
L. T.	None	Apple Cinnamon rolls—2	Potato Meat Cinnamon rolls—2

The fact that with two exceptions there was either no increase or an actual decrease in the caloric intake in June as compared with that in January indicates that the orange juice had no influence in stimulating the appetite. This observation was verified in conversation with the parents, and is in accord with the statement of Byfield, Daniels and Loughlin (3), "Appetite seems in general to play only a minor rôle in the stimulating effect of the water-soluble vitamin on growth."

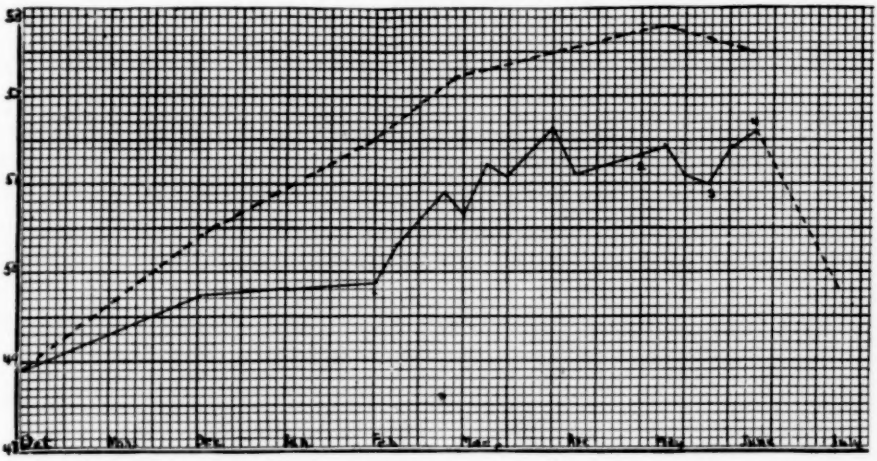
Study of weight curves. The effect of the addition of orange juice to the diets of these children upon the weight curve is shown in Plate I and Table III. There would seem to be no doubt of the beneficial action of some constituent of this fruit. The abrupt upward turn of the curve during the month following the addition of orange juice is comparable to the results shown by Byfield, Daniels and Loughlin (3) for infants. During the three weeks period when orange juice was discontinued, the children sustained an average loss of 0.35 pound. Again with the second introduction of orange juice the last two weeks the average gain was 0.5 pound per child. In view of the abnormal conditions incident to the close of school, and the fact that four children were without fresh milk during the last three weeks, this gain seems the more notable. The initial stimulus to growth immediately following the addition of vitamin B observed by Funk (9) is similar to the effect of orange juice (233 per cent of expected gain the first month of orange juice administration as compared with 102 per cent the second month).

Relation to seasonal growth curve. A comparison of the weight curve of these children with that of the 164 normal children of the same school is of interest (Plate I). The latter shows the typical seasonal varia-

tion described by Porter (10). The gain of the underweight children from February to June was obtained at a season when the average weight curve of children is almost at a standstill or shows a downward trend. Hence, in addition to securing this gain, the effect of the usual decrease in a child's weight during the spring has been overcome.

PLATE I

COMPOSITE WEIGHT CURVE



Upper dotted line—164 normal children.
Lower full line—14 underweight children.
Dotted line at end of full line—7 underweight children.
1–2 orange juice given; 2–3 no orange juice given; 3–4 orange juice given.

TABLE III

Per cent of expected gain

	PER CENT
October 1–February 1 (four months preceding administration of orange juice)	49
February 1–June 1 (total period of experiment)	105
February 1–April 25 (orange juice given)	132
April 25–May 16 (orange juice discontinued)	67
May 16–May 30 (orange juice resumed)	250
March 17–March 30 (spring vacation)	433

Effect of vacation period. That over-activity and fatigue are important factors preventing gain in underweight children is indicated by the rapid rise in the weight curve during the spring vacation followed by an equally sudden drop in the first week following the return to school. It

is possible that the increased amount of orange juice given just preceding the spring vacation may have had some effect in producing the unusual gain (433 per cent of the expected), since seven of these children during the first month of the summer vacation showed a distinct loss in weight. In the latter period the diets contained little fresh fruits and vegetables and some of them no fresh milk.

Gains made by individual children. For the sake of brevity a composite chart and curve have been given showing weight gains for the group. It is only fair to state, however, that three members of the experimental group made no gains. Of these, one lost weight during the period that orange juice was given. This child, M. R., had the largest number of physical defects in the beginning and in addition underwent an operation for removal of tonsils and adenoids.

A second child, R. K., who made no gain, gave every evidence of being a spoiled child. Also, the remarkable gain made by her during spring vacation indicates the need of rest in this case, since the diet seemed satisfactory except for an excess of sweets.

With these two exceptions it may be said that the children who made the least gains were those receiving the least adequate diet. It is also interesting that in several instances those who made relatively little gain in weight showed the greatest increases in height.

The results of this study are suggestive rather than conclusive. Experimental work where conditions of laboratory control prevail is essential to a definite knowledge of the effect of dietary additions on stimulation of growth in underweight children. This work has demonstrated, however, an unmistakable rise in the weight curve of such children produced by the daily administration of 45 cc. of orange juice. This result may be the effect of added vitamin A, B, or C, or of inorganic constituents which may either supplement a deficiency of these substances or produce some other change such as a shift in the acid-base equilibrium.

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GETTING OUT OF THE KITCHEN

NELLIE M. WIGHT

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Training in cooking in the grammar grades is designed in part to give common sense instruction in wholesome preparation of ordinary food with an understanding of food values in relation to health rules; to establish correct eating habits and other living habits, and to apply the principles of industry and sanitation to housekeeping. Thus the grammar school cooking instruction has an intimate contact with personal and public hygiene and the writer decided to emphasize that contact in following the suggestions from headquarters that cooking teachers extend their own activities beyond the precinct of the kitchen. Putting over the "Health Idea" thereupon became the slogan of the cooking department of school No. 46. The enthusiastic children of the kitchen soon became inoculated with the departure, which was reflected in original platform programs presented by them at different times to various groups of other pupils in the school. The infection spread throughout the whole school and last June the "Health Idea" became the basic theme for the general graduation exercises attended by 3,000 children and parents.

Statistics show that the schools have a large proportion of children of both sexes who are under par physically and need health education. Just whose duty is it to help with this education? It should not be left to one group, but rather to a union of many—officials, parents, doctors, nurses, teachers, and public benefactors. From a single viewpoint, there are many ways in which the health idea has been presented to and through cooking classes. Classroom and laboratory methods will not be referred to in this discussion, for most domestic science departments have good courses of study for regular work.

The first time I remember "coming out of the kitchen" except for an occasional mothers' meeting, was about a year and a half ago when we had milk week. I had secured the principal's permission to give an assembly program on milk. Each of the cooking classes was informed of the coming event and invited to give ideas. Don't ever say the modern child has no ideas; there was a deluge of them! The most appropriate were selected, enlarged upon, and presented in the following program:

I. Exposition—Pure milk
II. Play—Rosie cheeks and pale faces
III. Recitation—Hot milk toast
IV. Two minute speeches on milk

One plan that worked out excellently was inviting the boys who ordinarily never came into the school kitchen to make these two minute speeches. Four volunteered; they came to the kitchen to join the girls in a lesson on milk. From this they collected the material for their speeches.

Our school has a small assembly room on each floor and the program was presented first to the classes of the upper grades, about six hundred students. News of these exercises spread to the other floors and several other performances were given in the respective assembly rooms until all the three thousand children in our school saw it, even the little crippled children to whom it was necessary to give a performance in their own room.

Several other assembly programs have been presented since then. In each instance the boys were invited to take part, their coöperation doing more to make health education popular in our school than any other one thing.

Last June the interest of the children reached a climax in this work when the graduation exercises were made a "Health Program." The following numbers, brought to a fitting climax with a talk by Dr. Franklin C. Wells, of New York City, constituted the health part of the program:

I. Exposition—food groups
II. Our milk supply: (a) exposition, (b) demonstration
III. Mother goose health rhymes
IV. First aid demonstration
V. Exposition—How to obtain information on health problems
VI. Recitation, "Who can live without dining?" Owen Meredith

The "Food Group" number was written by one of our girl students. She illustrated her talk with charts showing different foods of the various groups. These charts were made in the cooking classes from pictures the children collected from magazines, poster advertisements, etc. They were mounted on large pieces of black pasteboard, and the drawing department printed the names of the groups in white on the respective charts.

One of the boys gave a talk on New York's milk supply, its handling, inspection, purification, and grading. This was followed by a demonstration of pasteurizing milk in a small quantity.

By this time the audience needed something light; so we presented "Mother Goose Health Rhymes," by Elizabeth Watson, in the form of a play. Credit for this play is due one of our English teachers and the students who took part.

In the "First Aid Demonstration" a girl took the part of the school nurse. Two little boys, one with a burn and the other with a cut, came to her office for treatment. She attended to their injuries and at the same time taught them to clean a cut, dress a burn, and apply bandages.

The boy students were much interested in the fifth number, since one of them wrote it as well as delivered it. He obtained his information by attending one of the cooking classes when that part of the work was being discussed. He helped to hold the attention of his audience by exhibiting magazines, papers, pamphlets, and books on the subject.

"Who Can Live without Dining?" was recited by a little Italian boy dressed as a chef.

In order to give point to what has gone before, as well as to emphasize the scientific endorsement of such a health program, a special effort was made to obtain the attendance of a medical speaker prominently identified with public health activities. Dr. Franklin C. Wells has a marked aptitude for reaching the mentality of the children and at the same time interesting and stimulating the attention of the adults in the audience. He got the spirit of our program with the first number. It is highly important to the success of the program to include such an address by the right type of public-spirited doctor. It is suggested that local health departments may be called upon to indicate capable medical public speakers.

In preparing a "Health Program," a number of points are essential:

1. Have the subject matter educational but treat it in a popular style.
2. Use students' material whenever possible.
3. Distribute a little comedy among the numbers to relieve the tension.
4. Have continuity in the program.
5. Use simple words.
6. Make careful selection of child to fit the respective part.
7. Have few numbers and allow plenty of time for drilling.
8. Coöperate with the English department of your school. It takes an expert to catch the little slips in enunciation, which mar the finished product.

COOPERATIVE LAUNDRIES IN THE UNITED STATES

RUTH VAN DEMAN

Many home economists have long believed that the laundry belongs in a central plant where power, labor, and materials can be used more economically than is possible in the home. This part of household labor must eventually be industrialized in the country as well as in the city, they hold. For even with all the mechanical helps, home launder ing, if well done, means hard monotonous work for somebody. The situation is further complicated by the fact that science has discovered striking reasons why greater cleanliness is needed in our whole physical environment and has in fact given cleanliness a new meaning. From this standpoint, clean food, clean clothes, and clean surroundings have important bearing on the whole standard of living and on social behavior as well.

The leading agricultural economists now agree that the majority of American farmers can not hope to make much more than a living from their farms. Therefore whatever tends to raise the standard of living on farms is an indirect contribution to income and makes the rural population more content. In other words, if people can live as comfortably in the country as in the city, there will be less incentive to change. One of the great drawbacks to farm life has been the drudgery required of the women, and washing and ironing have been no small part of this. Rough, heavy clothing which is the hardest kind to launder by hand can be handled most cheaply in the power plant since it only needs to be rough dried. The cooperative community laundry, then, by taking all the laundry, or at least the heaviest part of it, out of the home may help to raise the standard of living.

Furthermore this idea of cooperation among consumers, according to the plan of the Rochdale weavers, is attracting more of a following in this country particularly since the war. Economic necessity is pushing a few consumers toward cooperation. Others, particularly women who got social enjoyment such as they never before experienced in cooperative war activities, are eager to apply the same principles to their everyday economic problems. The cooperative laundry, therefore, owned and managed by its patrons, supplying the type of service they themselves want at cost by returning any surplus profit as a dividend on patronage, is of interest to all these groups.

Five cooperative laundries were in active operation in the United States during 1922. Even in this small group there are what might be called three types: two rural laundries, two others started by union workers as the result of labor troubles and subsidized by the general labor organization in those cities, and the third the outgrowth of a theoretical interest in consumers' cooperation.

RURAL COOPERATIVE LAUNDRIES

One of the rural laundries is at Chatfield, Minnesota, the other in River Falls, Wisconsin, and both are operated in conjunction with cooperative creameries. This seems to be a particularly economical arrangement because the same heating plant can be used for the creamery and laundry with little added expense, the otherwise idle time of creamery employees can be used in the laundry, accounts can be kept by the same bookkeeper and laundry charges merely deducted from the checks returned for milk or cream, and last, but by no means least from the point of view of convenience for patrons, the laundry bundle can be brought and called for on the regular trips to the creamery.

The Chatfield laundry has been in continuous operation since it was incorporated in 1912. It follows the general plan of a Rochdale cooperative society in organization, finance, and management. Membership is open to anyone through the purchase of one share at five dollars, and capital stock draws only 6 per cent interest. Each member is entitled to only one vote, regardless of the number of shares owned. The shareholders elect a board of directors which in turn hires a manager to take active charge of the business. Four per cent of the net earnings have been put into a reserve which now totals $1650, or about four-fifths of the amount of the capital stock. The volume of business steadily increased from $5065 in 1913 to $9152 in 1921. This laundry serves both country and townspeople and non-members as well as members. Its prices, according to a recent statement of the manager, average forty per cent under other laundries in the State, and the quality of work is said to be excellent. The several reports published on the Chatfield laundry list the equipment and give further details which need not be repeated here. Suffice it to say that the Chatfield laundry has succeeded because it has given at moderate cost the type of service needed and wanted in the community, it has kept its members informed of the financial status by regular reports, management has been on a professional basis, and it has met its financial obligations in businesslike fash-

ion. These points are particularly mentioned since disregard of them has caused the failure of many cooperatives.

The River Falls laundry seems to be very similar to the Chatfield not only in general plan of organization and management but also in type of patronage. It, too, serves both town and farm families and has kept its prices as low as is commensurate with good work. During the first year (1914) business amounted to $6343; for 1921 it totaled $13,750, according to the printed financial report sent to members. The manager, however, considers 1921 an "off" year because of the general financial depression. In addition to paying the six per cent interest on capital, a reserve of $1233 has been built up during the eight years of operation. The River Falls laundry also holds as one of its assets a prize of $300 given several years ago by W. A. Henry, former dean of the Wisconsin College of Agriculture, to the first farmers' cooperative laundry in Wisconsin to prove itself a thorough-going success. Another laundry at Milltown, Wisconsin, which competed with the River Falls for this prize, failed after three years.

COOPERATIVE LAUNDRIES ORGANIZED BY THE WORKERS

The Citizens' Cooperative Union Laundry in Lynn, Massachusetts, and the Citizens' Cooperative Laundry in Little Rock, Arkansas, though organized on the Rochdale principles are not in reality examples of consumers' cooperatives. Their purpose is not so much to supply economic goods to a group of consumers more efficiently than does the present system, as it is to regulate wages and conditions of the workers. In some ways these cooperative laundries are like the self-governing workshops in England which embarassed the cooperative movement for many years.

When this survey was undertaken, names and addresses of ten cooperative laundries of this type were obtained from various sources. Only two of them have proved to be still in operation, which shows that organizations of this sort have difficulty in getting on a stable basis. The Lynn and Little Rock laundries have been running only one and three years respectively, and it is of course too soon to pass judgment on them. One, however, is already $3000 behind in payment of obligations, and the other has as yet made no profits. Both complain of lack of cooperation among members.

THE VILLAGE COOPERATIVE LAUNDRY IN NEW YORK CITY

Though like the other two in general plan of organization and management the Village Cooperative Laundry is unique in certain respects. It reflects some of the atmosphere of its home—Greenwich Village. It has its origin among groups of people who gathered in some of the settlement houses in Greenwich Village for war work and became so imbued with the cooperative spirit that they wished to put their beliefs to test in a consumers' cooperative organization. After discussing the pros and cons of a cooperative store, it was decided that a laundry, which required less capital and which was needed by the residents of Greenwich House as well as others in the group, would be most profitable. Moreover a room in the basement of Greenwich House was offered at a very low rental considering that hot water, gas, and electricity were included.

Figures on laundry equipment were gathered by a volunteer and later checked over by one of the group employed on part-time basis for one month. Unfortunately, however, neither of these persons had had practical experience with commercial problems as a basis for judgment, though they attempted to make up for this by consulting with experts.

Incorporation and Plan of Finance and Management. In February, 1921, the laundry was incorporated as "The Village Cooperative Society" under Article 3 of the New York Business Corporation Law. Shareholders had then subscribed $412 worth of stock. Other capital was furnished without interest by a person in sympathy with the cooperative movement. In all, $912 was raised for the start.

The constitution embodied all the Rochdale principles, namely: one vote for each shareholder regardless of whether he owns one share or the maximum of forty; membership is open to anyone through the purchase of two shares at $5 each; capital stock to draw only 6 per cent interest; economic goods to be sold at the rate current in the neighborhood; net earnings to be distributed as patronage dividends.

The practical management of the business was first put in the hands of a board of directors elected by the shareholders and of a paid manager appointed by and responsible to the board. Later it was necessary to appoint a managing committee which could give more time to selection of equipment and other details than could the board of directors. The employees were hired by and were responsible to the manager.

Such in brief was the initial plan of finance and management.

The First Year of Experience. The story of the first eight months of this laundry is somewhat like that of many other cooperative organizations, showing the same disregard of business principles.

First, the equipment bought was not suitable for commercial laundry use nor was it well-balanced or well-placed.

Second, the first manager was totally inexperienced in laundry work though energetic and loyal to a degree. This situation was partly corrected after a month by employing an experienced supervisor of the laundry processes, but much of the business management was still left to volunteers.

Third, the system of accounting, or almost lack of it, led to a financial tangle that has taken months to unravel.

On the other hand, the quality and the volume of work done in limited space and with inadequate equipment were above that of other laundries in the neighborhood.

The Village Laundry may be said to have entered the second phase of its history when a thoroughly competent business manager, also keenly interested in cooperation as a social and economic theory and practice, was added to the staff. Though paid for only part time, he is said to put in more than full time, a practice that may be criticized as unbusiness-like but one that is often found even in commercial organizations. He immediately set about studying labor cost in relation to output and various other problems of operation and administration, and through his management the income is being changed from a negative to a positive quantity. In other words the weekly deficit has been changed to a steadily increasing profit.

The financial report for the first quarter of 1922, based on a thorough audit of the books by a certified public accountant, shows the effects of good management and better use of machinery in the increased output in relation to labor cost. In 1921, 71 per cent of the expenditures was on labor; this percentage has now been cut to 61, but should be even 10 per cent lower according to the commercial plants. At present 26 per cent of the patron's dollar goes to pay for ironing, and it is expected that the new press just installed will reduce this somewhat.

How Does the Laundry Measure up as a Consumers' Cooperative? As an example of consumers' cooperation the Village Laundry falls short of perfection for these reasons:

Only 51 per cent of the members are patrons and about 50 per cent of the total business is done with them. In other words, as many non-

members as members are taking advantage of its services. It would seem, therefore, that many persons bought shares more because of some theoretical interest in cooperation than because they wished to participate in this society as consumers. Their share capital has of course been useful, but as patrons they are deadwood and give the enterprise a philanthropic caste which is not characteristic of true consumers' cooperation. This situation may, however, gradually correct itself, because persons now buying shares, are, with few exceptions, patrons.

This philanthropic tendency is further shown in discussions in members' meetings about the type of work that shall be done. Some members hold that a wet-wash service should be established because it would be a "benefit to the community." None of the present members wants wet-wash for himself, but once the service was established, it is argued, membership would be increased. This does not seem reasonable to expect, however, unless the policy toward non-members were altered. At present they have the economic advantage. They get their work done at the same rate as members, and they have invested nothing in stock on which they are getting no interest. When the laundry pays interest on capital and even has patronage dividends to distribute, the situation will be different. The economic goods sold by a consumers' cooperative should be of the type wanted and needed by the majority of members. Only under those conditions is its growth spontaneous and healthy.

So far as the Rochdale principles are concerned the Village Laundry has hot yet been able to live up to that of paying the current, or in fact any interest on capital. Furthermore, unwittingly it has not held to that of selling at cost. For the first year it sold 7 cents below cost on every dollar's worth of patronage, hence the steady rolling up of a deficit.

CONCLUSIONS

Of the five cooperative laundries in the United States, only two have been running long enough to be considered on a stable financial basis.

From this study, the rural community would seem to be the place where the cooperative laundry is most likely to succeed for the following reasons:

First, the commercial laundry is not there as a competitor, a fact that has caused the failure of not a few cooperative ventures.

Second, the cooperative laundry can probably do business on a narrower margin than can the commercial, since its object is not to make

profits for its owners but to sell the best possible service at cost by returning any excess in patronage dividends.

Third, and by no means least important, farmers have had more experience and are more successful in running cooperative organizations than any other group in this country. There are thousands of farmers' cooperatives, doing a business totaling millions of dollars each year. In fact in number and variety of rural cooperatives, the United States is second to no country unless it be Russia.

There is no reason to believe that the success of the Chatfield and River Falls laundries, although they are located in particularly prosperous farming districts, can not be repeated in many other rural communities, especially where there are cooperative creameries or cheese factories.

The community should first be surveyed on the following points: number of families that would patronize such a laundry; type of service they want and would be willing to pay for; how much capital stock they would subscribe.

It might even be possible to get signed pledges of patronage for 12 or 18 months so that the needed volume of business would be assured. This contract method has proved successful in many other farmers' cooperatives and should be equally so in consumers' societies, since it would obviate one of the common causes of failure.

After the laundry is opened it should be run on thorough-going business principles. Books should be audited regularly, and clear financial statements circulated among patrons.

Management should be run on a professional not a volunteer basis and should be adequately paid. The manager should be given a reasonably free rein by the board of directors, and only important decisions of policy put up to the board or the whole membership.

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HOME DEMONSTRATION WORK IN WYOMING

MARY ROKAHR

State Home Demonstration Leader

The economic pressure during the year 1922 was so great that home demonstration agents, state workers, and other women alike turned their attention to the problem of how to make the dollar go further, how to earn more money, or how to get along with what was on hand. The morale of women during this stringent period of financial conditions often reached low ebb, and the extension workers found that efforts spent in helping the rural woman dress better gave her and her family courage to face problems that before looked insurmountable. No apology is therefore offered in presenting this 1922 report with outstanding results in terms of clothing work, number of hats made, and the practice of better poultry methods. When a woman is willing to come ten miles on horse back in a snow storm to finish her hat, there is something beneath the incident that cannot be explained in mere words.

The following illustration explains the Wyoming woman's keen interest in the clothing work. In one of the communities in a dry land county the project leader called together the women and children to discuss the care of children. Only three mothers with five children attended. The next week a hat-making meeting was held in the same community and 19 mothers attended accompanied by 41 children. When one of the women was asked to explain why the mothers were more interested in hats than children, she said, "You see we can have the children any time, but I haven't had a new hat in seven years." This is only a temporary condition but it explains why results are expressed in terms of clothing work this year.

ORGANIZATION

Home demonstration agents have been employed during the past year in six counties. No decrease in number of workers occurred. No expansion was possible because of lack of state funds. A state clothing specialist was added to the force, January 1, 1922, due to the overwhelming demand for this type of work.

State workers carried some phase of home economics extension work to all but two counties this year. The county agricultural agents as usual arranged for work for women in their counties and in other counties the work was carried on through women's clubs.

Clothing. When the Wyoming woman heard that the extension service could and would help her with hat making she immediately centered her interest on this phase of clothing work, and hat making became a state wide project. The women attended demonstration meetings and were taught the fundamental principles in the choice of hats, such as line and color. Two hundred meetings were held with an attendance of 2375; 1118 hats were made, and the women stated that they had saved $7,652.24 by making their own hats.

Other phases of clothing work that brought results were wool carding, making of comforters, dyeing and making of garments from dyed flour sacks, dress remodeling, construction, and making dress forms. To date records in the extension office show that 1868 women have dress forms to assist them in dress construction work. The aim of the extension service is to teach every Wyoming woman the principles involved in the choice and construction of garments and how to be a "well dressed woman" on all occasions. In the meantime these activities are saving money.

Poultry Husbandry. In Wyoming 95 per cent of the women have charge of the farm poultry flock. The poultry specialist and extension workers have continued during 1922 to help the rural woman make her poultry flock a better paying flock. Special emphasis has been placed on greater egg production by culling, and on better housing and feeding methods.

In Platte County where poultry records have been kept for three years, the records show that egg production in some flocks has increased from 94 to 149 eggs per hen. In 1922, 180 flocks were culled, and the work is being continued.

Food and Nutrition. "Milk for Health" campaigns were conducted in two counties. Talks were given at all public gatherings and through the schools. Poster campaigns and publicity in the newspapers kept "Milk for Health" before the public. As a result of the campaign one county reports a 25 per cent increase in the use of milk and in both counties where 20 to 35 per cent of the school children were found to be undernourished, follow-up clinics show that these children are being brought up to normal.

Lincoln County women have had a series of interesting food preparation lessons which included the best ways of preparing foods common to the locality. Not only did the women learn the value and methods of preparation of these foods, but this work was a means of bringing a small community together.

American cheese making continued to be of interest to the woman who has an extra supply of milk and no market for it. During the year, 8462 pounds of cheese were reported as having been made.

Child Care. The community programs did not call for as much work as usual on this project, but in two counties clinics were held for the pre-school child. In a number of communities, meetings for weighing and measuring the children were held every month and graphic weight charts given to the mothers so that they might follow more closely the development of the child.

As a result of the health work in the Platte County schools a free clinic for all pre-school children was arranged by one of the local physicians. Out of 70 children examined, only three per cent were found to be underweight and only one child a real case of malnutrition. This indicates that the work on nutrition of the past three years is bearing results.

Better Homes. Everyone in the state is interested in better homes, and as financial conditions improve we can expect to do more on this project. Two Better Homes demonstration tours were held during the past year to arouse interest in good room arrangement, house decoration, and home conveniences. Agents report 96 pieces of household equipment added to Wyoming homes this year.

Fairs and Recreation. Exhibits showing the value and results of home demonstration work were held at four county fairs and at the state fair. All workers assisted in judging at fairs and gave talks on judging.

In a number of communities in Laramie County the mothers and children met together for recreation. The mothers were given information on how to amuse and instruct children, what stories to tell, and ideas on home kindergarten work. After the talk the mothers and children played games.

SUMMARY

Agents report a total of 692 meetings, attendance 8125; 2621 families adopted suggestions; 837 home visits were made. Project leaders report holding 300 meetings with attendance 3351; 133 calls made by leaders in securing reports; 396 women were taught some phase of clothing work by local leaders.

Saving through extension agents' assistance in poultry-culling and making hats, garments, and dress forms was reported at $24,018. The salaries and expenses of six home demonstration agents amount to $20,900.

Eighty-five per cent of the women leaders in home demonstration work, chosen by women in their own communities, functioned during 1922. The fact that the rural woman is standing by the extension organization and is giving her time and energy to reach other women, makes one realize that progress is being made.

The number of women who have put into practice, in their own homes, the suggestions of extension agents and have reported on results, has increased over last year. The total number for this year is 683. Next year we are asking for added help from local women so that easier and better home practices may reach every woman in a community.

A HISTORY OF DYES

PAULINE BEERY AND LOUISA WILLARD

(*Continued from April*)

THE CREATIVE PERIOD

It is a matter of history that the natural dyes which were of sufficient importance to become articles of trade were always exceedingly expensive. It was for the purpose of lowering the cost of producing dyes and thus making them cheap enough to be within the reach of all that the chemist conceived the idea of attempting to prepare dye materials by synthetic means. With this end in view, various lines of research were undertaken for the purpose of determining the chemical composition of the coloring matters of a few of the natural dyes of commercial importance. In order to build up a compound by synthetic means, chemists reasoned that it would first be necessary to know the exact structure of the compound toward which they were working.

The discovery of aniline. In 1826, while attempting to analyze the coloring matter present in indigo, the German chemist, Unverdorben, obtained a product which was destined to play an important part in the history of the dye industry. This oily, colorless liquid (turning brown on exposure to air) was later named *aniline* (so-called from the

fact that it was obtained from indigo, *anil* being the Sanskrit for "blue substance" or "indigo" (42). In 1834 Runge succeeded in isolating from coal-tar a substance which was later shown to be identical with the material which Unverdorben had previously prepared during his analysis of indigo (43). In 1841 Fritzsche prepared aniline by the action of potassium hydroxide on indigo (44). A. W. Hoffmann, Professor of Chemistry at the Royal College of Chemistry in London, showed that the materials prepared independently by Unverdorben, Runge, and Fritzsche were identical. It was then reasoned that, if aniline could be obtained from indigo, indigo should lend itself to synthesis from aniline. Since no cheap and plentiful source of aniline was known at that time, a new field for investigation was opened up to chemists who were interested in the possibilities of preparing synthetic dyes.

Researches on coal-tar. Because of the fact that Runge had prepared from coal-tar this substance which seemed to offer some solution to the problem of furnishing a foundation material for synthesizing dye materials, attention was drawn to the possibilities afforded by that very common, and hitherto useless by-product of the coal-gas industry. Kidd (45) had, in 1821, shown that naphthalene could be prepared from coal-tar. The compound which we now call anthracene had likewise been prepared from this source (46) (47). Aniline had likewise been prepared therefrom, but only in small quantities. Hofmann (48), in 1845, discovered that benzene could be prepared from this source, and that this in turn could be used in the preparation of aniline. After this latter discovery, Hofmann set his student, Mansfield, to the task of working out a method for the separation of coal-tar into its various constituents. In the published results of Mansfield's research the first thoroughly organized scheme for separating coal-tar into its various constituents by means of the process of fractional distillation was presented. This opened up a veritable storehouse of materials which later proved to be of inestimable value as foundation materials for building up artificial dye compounds (49).

The first synthetic dye (50). While the foremost chemists of the time were still engaged in the task of attempting to produce indigo and madder by synthetic means, the first important artificial dye was prepared accidentally by the youthful chemist, W. H. Perkin. Perkin, at the time of the experiment a youth of eighteen studying under Hofmann in London, was engaged in an endeavor to prepare synthetic quinine from an impure sample of aniline. Instead of obtaining the white crystalline

substance for which he was seeking, Perkin found that he had prepared a dark-colored mass of uninteresting looking material. Upon examination, however, this material was found to exhibit the properties of a purple dye. Before taking out patents for this material, Perkin worked for four months upon the standardization of his method of preparing this material. A year and a half after the discovery of this dye material, its commercial manufacture began. Although called by a great variety of terms, the name *mauve* or *mauvein* seems to be in most common use. Mauve enjoyed an extensive use both as a material for the dyeing of textile fabrics and as an ink for the printing of stamps.

Picric acid (51). Although picric acid was first prepared probably as early as 1771, its chemical constitution was not definitely established until 1842, and its commercial application as a dyestuff was not begun until a much later time. Historically, therefore, picric acid is the oldest of the dyestuffs. As regards its influence on the early history of synthetic dyes, however, it is of no especial importance.

Other early synthetic dyes (*52*). The inspiration afforded by Perkin's accidental discovery of mauve led to a renewal of interest in the subject of synthetic dyes. The discovery of mauve was followed in rapid succession by that of magenta (fuschine) in 1857, of anilin yellow in 1859, of rosaniline blue in 1860, of methyl violet in 1863, and of Bismarck brown in 1865.

The production of synthetic madder (*53*). Although the coloring matter of madder was isolated as early as 1826, all attempts to analyze it chemically failed until 1868, probably because of the fact that the early samples were of various degrees of purity, and partly because of inaccuracies in the atomic weights in use at the time.

In 1868 the German chemists, Graebe and Liebermann, showed that the principal coloring matter of madder was a compound, alizarin, which was closely related in structure to anthracene, a coal-tar product. During this same year was the famous race between Graebe and Libermann on one hand, and W. H. Perkin on the other, for perfecting a practical process for obtaining this dyestuff from anthracene. The application for a patent was filed on June 25 by the German chemists, and on June 26, one day later, by the English chemist, the two groups of men having worked out the identical process absolutely independently.

In 1868 more than 70,000 tons of madder was produced in the countries where vast tracts of land were given over to its cultivation. With the perfection of a method for producing the coloring matter of this dye by

artificial means, the cultivation of natural madder began gradually to decline. In this way vast acreages of land were given over to the production of food materials which had formerly been devoted to the production of this dyestuff. At the present time the cultivation of natural madder has become practically obsolete.

The production of synthetic indigo (*54*). Altough indigo was one of the first dyes in which chemists became interested, it was not until after a vast number of artificial dye materials had preceeded it in the commercial field that a practical method for preparing synthetic indigo was discovered. Between 1848 and 1883, a large number of formulas were proposed for the coloring material of this dyestuff. In 1883, the German chemist, Baeyer, suggested the formula for this material which is commonly accepted at the present time. Between 1883 and 1900, various syntheses were proposed for this coloring material; none of them, however, was based upon a method which could compete commercially with the natural product. It was not until 1900, when the Badische Aniline and Soda Fabrik of Ludwigshofen-am Rhein perfected a method for preparing indigo from naphthalene, a coal-tar product, that synthetic indigo was made a practical reality.

With the introduction of synthetic indigo, the production of the natural product began to decline. In 1897 nearly a million acres of land in India were devoted to the cultivation of the indigo plant; the annual crop from this vast area was valued at something over $20,000,000. At the beginning of the world war in 1914, the annual value of the natural product had declined until it amounted to little more than one-half million dollars. The price of indigo likewise suffered a reduction, the introduction of the artificial product bringing the market price down to less than one-third of its former magnitude.

The production of synthetic ***Tyrian purple*** (*55*). In 1909, the German chemist, Friedlander, analyzed the coloring matter secreted by Murex brandaris in order to find out whether or not it might be possible to reproduce synthetically this ancient dyestuff "of which one drop worked miracles." In order to carry out this research, 12,000 molluscs were extracted from their shells, the total yield of color obtained from this number of specimens being about 0.4 gram. Analysis showed that this coloring material was losely related to indigo, two of the hydrogen atoms of the indigo compound being replaced by bromin atoms. It was further shown that a material which had been prepared synthetically five years previous was identical in structure except for the position of the two

bromin atoms. In color and in durability, the synthetic purple was shown to be equal in every respect to the natural product.

Theories concerning the dyeing properties of organic compounds. The physicists tell us that the color of an object is dependent upon the ability of this object to reflect certain rays of light. If a ray of white light falls upon an opaque body, and if this ray is reflected with all of its constituent colors unaltered, the object is said to be *white.* If all of the constituent rays which comprise the ray of white light are absorbed by the object, it is said to be *black.* If, on the other hand, a portion of the rays is absorbed and a portion of them reflected from the surface of the body, it is said to be *colored;* the color in this case is dependent upon the nature of the rays which the object reflects. According to the chemist, this ability is dependent upon the chemical structure of the coloring matter.

It is not difficult to believe that an inorganic compound, such as, for example, ferric oxide or "iron buff," has the property of absorbing all of the colors of the spectrum except those which produce the particular shade of tan which we have been accustomed to associate with this compound. In this same way we know that lead chromate is a compound which absorbs all colors of the spectrum except those which produce the particular shade of yellow which is characteristic of this compound. When it comes to organic compounds, however, the matter becomes more complex. How can the elements hydrogen, carbon, oxygen, and nitrogen, with occasionally bromine, sulphur, and a few others, be combined in such a way that they are capable of producing an almost infinite number of different colored compounds? Why is it possible to have two organic compounds with exactly the same elementary composition, one of them having all of the properties of a dyestuff, and the other compound having none of these properties?

To answer these questions, Witt(56) proposed, in 1896, a theory which has been supported by subsequent investigation. According to this theory, each organic compound which has the property of color has, in its molecular make-up, a certain atomic constellation or color-bearing group called a *chromophore.* The number of groups which thus confer upon a substance the power of selective absorption of light are very numerous. (According to an article by Witt appearing in 1902, the number of known chromophore groups at that time numbered about two dozen.) The most common of these groups are the *nitro* group, the *azo* group, and the *quinoid* group.

According to this theory, the fundamental compounds which contain chromophores are called *chromogens.* Since all compounds which contain chromophores, however, do not act as dyestuffs, the compounds which are able to fix themselves upon textile fabrics have been found to be chemically reactive. The reactivity in this case is due to the presence in the compound of certain basic groups, such as the amine group, or of certain acid groups, such as the hydroxyl, the carboxyl, and the sulphonic acid groups. Since these auxiliary groups are necessary for the purpose of making the compound chemically reactive, they are called *auxochromes.*

Theories explaining the dyeing process. According to Cain and Thorpe (57), the following theories have, from time to time been brought forth to explain the action which takes place when a dye fixes itself upon a textile fiber: (1) The mechanical theory (58); (2) the chemical theory (59); (3) the solid-solution theory (60); (4) the absorption theory (61).

The mechanical theory assumes that the dyestuff is drawn from the solution and held in some peculiar physical manner by the fiber, astringents helping, in some cases, to close the pores of the fiber and thus retain the color.

The chemical theory supposes that there is a direct combination between the dye and the fiber (in the case of direct dyes), and between the dye, the mordant, and the fiber (in the case of mordant colors), an insoluble *color-lake* being formed in each case.

The solid-solution theory is to the effect that the fiber acts as a solid solvent for the dyestuff.

The absorption theory differs but little from the mechanical theory. According to this belief, dyeing is a phenomenon of absorption, the dye being retained on, and in, the fiber by adhesion.

Classification of synthetic dyes. Dyes may be classified broadly under three heads: (1) Those which combine directly with the fiber, (2) those which require an intermediate substance or mordant in order satisfactorily to fix and fully develop the color, and (3) those which are produced on the fiber by the interaction of the reagents from which they are prepared. The groups are subject to further division as follows:

Direct colors.

(1) Acid dyes—direct to animal fibers.

(2) Basic dyes—direct to animal fibers, but may be mordanted on vegetable fibers.

(3) Substantive dyes—direct to both animal and vegetable fibers.

(4) Sulphur dyes—direct to vegetable fibers.

Mordant colors.

Colors produced on the fiber.

(1) Mineral dyes.

(2) Vat dyes.

(3) Insoluble azo-dyes, or developed colors.

Acid dyes (62). The acid dyes are salts (usually sodium or potassium) of colored organic acids. They are applicable to animal fibers, and are dyed in an acid bath, usually sulphuric acid. The acid serves to produce the desired colored compound, as follows:

Sodium salt of colored organic acid + sulphuric acid = colored organic acid + sodium sulphate

Glauber's salt is used with the dyes of this class as a leveling agent. Martius' yellow, one of the earliest of the acid dyes was discovered in 1863. This dye has later been replaced by Naph'hol yellow S, another dyestuff of this same class.

Basic dyes (63). The basic dyes are so-called because of their basic character, due to the presence in their molecule of the amine group. The earliest of the coal-tar dyes to be placed on the market belonged to this class of dye materials. The basic colors are notable for the brightness of the shades which they produce upon silk and wool. Because of their somewhat fugitive character, however, they are used when bright rather than permanent colors are desired.

The basic dyes are applicable to animal fibers in a neutral bath. Because of the rapidity with which the dyes are taken up, however, acetic acid is used in the dyebath to retard the rate of dyeing. Glauber's salt is likewise used as in the case of the acid dyes.

Substantive dyes. Congo red, the first dye which could be applied directly to vegetable as well as to animal fibers, was discovered in 1884 (64). The introduction of substantive dyes (sometimes called direct cotton colors) marked an epoch in the dye industry. From this time on the dyer's work was greatly simplified because of the introduction of the practice of dyeing union fabrics in a single bath.

The substantive colors are not readily exhausted from the bath by the fiber. For this reason sodium chloride is added to the bath, probably for the purpose of making the dye less soluble and thus making its exhaustion from the bath more complete. Since the dyes of this class are not so satisfactory with silks and woolens as are those of the acid and basic group of dyes, their chief application is in the dyeing of union materials (65).

Sulphur dyes. The sulphur colors comprise an important group of direct dyes applicable to vegetable fibers. They cannot successfully be applied to animal fibers because of the alkaline nature of the bath in which they must be applied. The first dye of this class was discovered in 1873 when the French chemists, Croissant and Bretonnière, prepared a dye called *Cachou de laval.* This dye material was prepared by fusing such organic material as straw and bran with sodium sulphide (66). This first sulphur dye was of no commercial importance.

Twenty years later Vidal, another French chemist, employed the same general method as that used in the preparation, using pure organic compounds instead of the organic matter used in the former case (67). This latter investigation led to the discovery of Vidal black, the first of a series of important dyestuffs. The dyes of this class are particularly valuable for producing blacks and browns upon cotton fabrics.

The sulphur dyes are so-called (1) because sulphides are used in their preparation, (2) because they contain sulphur in a peculiar form in their molecular make-up, and (3) because they are dyed from a bath of an alkaline sulphide, being insoluble in water.

Mordant colors. The mordant dyes consist of a large number of very differently constituted dyestuffs. Cain and Thorpe (68) state that all such dyestuffs are of an acid character, and that they are indebted to this property for their ability to form compounds with certain metallic mordants. The possible method by which the use of mordants was introduced has been discussed previously. The use of chromium compounds for this purpose is in more common use than is that of any other metallic mordant (69). The three possible methods of applying mordants are: (1) Dyeing a previously mordanted fabric; (2) dyeing in a single bath; (3) top-mordanting, or applying the mordant after the application of the dye (70).

Colors produced on the fiber. In this class are contained all dyes which are themselves insoluble, but which are produced by the interaction on the fiber itself of the materials which react to form this dye.

The *mineral dyes* are typical members of this class of materials. Lead chromate, for example, is insoluble in water; it could not, therefore, be applied from a water bath. The compounds which react to produce lead chromate are, on the other hand, water-soluble. If a fabric or a yarn is steeped alternately in solutions of sodium (or potassium) chromate and of a soluble lead salt, the reaction whereby the insoluble lead chromate is formed takes place upon the fiber itself.

The *vat dyes*, although they differ radically from the mineral dyes in every other respect, are insoluble colors which are developed on the fiber itself, the oxygen of the air being one of the reacting substances in this case. Indigo, the oldest of the vat dyes was applied to fabrics centuries ago by methods which are not essentially different from those in use at the present time. We read how, in ancient times, garments or yarns dipped in the colorless juice extracted from the indigo plant assumed a blue color when exposed to the air. The leuco, or colorless compound as extracted from the plant has since been found to consist of a compound called *indoxyl*, which is soluble in water and colorless. When exposed to the air, indoxyl is converted into the insoluble, blue compound called *indigotine*.

In modern practice indigo is purchased in the form of a paste or powder consisting of the insoluble blue indigotine. Since this cannot be applied directly to the fabric on account of its insolubility, it is subjected in the vat to the action of a reducing agent which reduces it to the soluble indoxyl. Garments dyed in this colorless bath become blue upon the oxidation of indoxyl in the air (71).

The *diazotizing process* was discovered by the Dutch chemist, Griess, in 1876. This process may be described briefly as follows:

1. The fabric is placed in a bath containing a certain amine, the amine chosen depending upon the dye which is to be produced.

2. The fabric is removed from bath (1) and is placed in a so-called diazotizing bath, this bath containing sodium nitrite. The sodium nitrite reacts with the amine to form a diazo-compound.

3. After removal from the diazotizing bath, the fabric is placed in the developing bath. This latter contains Beta-naphthol, a compound which reacts with the diazo-compound previously formed, with the production of the insoluble dye material in question.

Dyes of this class are sometimes spoken of as developed colors because of their method of application. One of the most important uses of this type of dye is in the production of fast, deep blacks on cotton and silk hosiery (72).

CONCLUSION

The evolution of the dye industry has been traced very briefly. In this industry scientific research has caused a revolution never before witnessed in the history of applied science. Concerning the comparative values of the natural and the artificial dyestuffs, much has been written and said (73). In view of the fact that the artificial materials (which were produced as a result of the analysis of the natural materials) were made so as to correspond exactly with the chemical composition of the coloring matter of the natural product, there is no foundation for the prejudice found in many quarters against synthetic dyes. Particularly is this true since the synthetic product is superior to the natural both as to its purity, and as to the uniformity of its composition. Matthews (74) is undertaking an investigation concerning the cause of the general distrust of artificial dyestuffs, particularly those of American origin. The number of distinct synthetic dyestuffs on the market at the present time numbers upwards of one-thousand, a number which could never have been equalled had inventive man not set himself to the job of preparing artificial substitutes for the materials offered by nature.

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A COURSE IN PERSONAL ACCOUNTS

JESSIE WHITACRE

School of Home Economics, Agricultural College of Utah

Two years of experience with our course in personal accounts has given it, we hope, a permanent place in the curriculum of our home economics course.

The intent of the course may be seen in the catalog description: "Keeping accurate records of each student's expenditures during college life; a critical and comparative study of students' spending habits as shown by the actual accounts kept; consideration of the principles underlying wise buying. Open to all college women,—one credit each quarter." This description also indicates the content of the course. Appropriate reference readings as well as comparison of actual expenditures of the members of the class furnish material for lively discussion in the regular meetings of the class, and for written review wherein we aim to emphasize those points toward which we strive to direct the students' thought and action.

First year—1920–1921

8½ months, September 1 to May 15

	AVERAGE	HIGHEST	LOWEST	NUMBER RECORDS USED TO GET AVERAGE
Total	$538.02	$782.65	$214.65	20
Clothing	177.35	327.85	103.62	20
Food	187.44	290.85	106.45	19
Room	65.83	96.00	45.00	16
School supplies	64.13	97.25	24.45	20
Recreation	14.88	25.00	12.41	20
Incidentals	16.81	57.00	3.10	19
Health	13.38	51.55	1.50	19
Gifts to others	14.99	30.85	2.00	19
Organizations	12.85	45.25	1.60	19
Savings	0	0	0	20

Second year—1921–1922

8½ months, September 1 to May 15

Total	$528.55	$991.70	$353.00	19
Clothing	128.34	306.40	47.34	19
Food	148.67	276.00	67.38	19
Room	64.67	125.00	12.40	18
School supplies	60.37	91.95	32.60	19
Recreation	18.76	54.20	10.95	19
Incidentals	17.76	46.85	2.30	19
Health	15.79	52.00	6.00	18
Gifts to others	21.50	90.00	1.70	18
Organizations	16.88	56.00	1.50	19
Transportation	25.65	47.65	2.60	18
Savings	9.35	258.75	3.20	3

The results in terms of information we have secured as to the money spent by students in the course is contained in the foregoing table, which also shows the divisions used in the keeping of the accounts, forms for which were devised by the Dean of Home Economics and Head of Department of Textiles and Clothing, when planning the course.

The average total in the second year falls to $502.82 when the highest total is not included, and 18 instead of 19 records are used. The highest total, $991.70; the highest figures for clothes, $306.40; for food, $276.00; for gifts, $90.00; and for organizations, $56.00, belong to a girl of wealth. Her money is interest on investments in her name. The lowest sums spent for food and room are the cases of girls living at home. Such students charged themselves their family number fractional share of house rent, or taxes and maintenance, and of the family's food. Several girls who did their own cooking spent smaller sums for food than those paying board. Wide variation in the sums spent for clothing, the class decided should be attributed to the varying needs of the different wardrobes when college opened; the fact that some girls do their own sewing and laundry and others pay money for this service; the different ideas of the girl and her family as to the articles that the wardrobe should include; and on the part of some, necessary frugality in this division.

Each month each student found the balance between the money she had received and that spent. Of the three students who had entries in the Savings division the second year, one is an orphan girl who elected to earn the extra credit by keeping accounts the second year, but who, like all the others in the class, had no savings to record the first year. For her to have saved $15.49 out of an available total of $351.48 is gratifying. The largest savings are of a widow who owns property and has life insurance to keep up.

Several students in addition to those who, having completed the three-hour credit course, earned one hour additional credit for accounts kept the second year, continued with their expenditure records after having had this course. In addition, the opinions of the students lead us to believe that the course is functioning, not only to secure information about the expenditures of college girls, but also to encourage the habit of keeping accounts and to arouse and stimulate ideas and ideals that should belong peculiarly to the home-economics trained woman.

EDITORIAL

A Message from the Executive Secretary. After spending the past four months in the field, and having taken part in meetings and conferences in sixteen states, it is my privilege to report to the members of the American Home Economics Association and the readers of the JOURNAL a few of the outstanding impressions gained from these field contacts. As one travels from state to state the belief deepens that not only is there a marvelous future ahead of home economics but at the same time a tremendous responsibility resting on every one of those trained in it, and the great danger lest on her own doorstep, in her own community, even in her own class room she fails to avail herself of the opportunity to be an integral part of the significant movements for social betterment.

There are many pieces of state work which stir deeply our pride and enthusiasm; there are also disappointments, and failures to see the larger meaning of home economics which give a warning signal for the future. It does encourage the woman genuinely interested in home economics to know that, as an organization, we are now ready for the plan of state affiliation with the national, as evidenced by thirty six affiliated states. In addition, five states have voted affiliation and are now in the process; three are holding their annual meetings during the spring when the steps necessary for affiliation will be taken; only four do not show prospects of affiliating before the annual meeting in August.

One of the things that has seemed to trouble the states has been initiating a program of work and some states have even thought that affiliation with the national served to complete rather than to begin real state activity. Not all the members have yet come into the consciousness that the state association was formed because home economics women had common interests; that they faced problems peculiarly their own and that professionally they had a work to be done which no other state group could or would do. A program of work is simply an analysis of the greatest home economics problems before the state and a serious attempt to find a way to solve them. To some states the high school course of study has been the most pressing problem, to others, a survey of home economics in all schools to serve as a basis for building a course of study for the state. In still others home economics subjects have not gained the academic recognition among high schools to which it is

entitled and state associations have undertaken to study why. One of the states is studying the qualifications of teachers, a reasonable basis for salary increase and promotion in rank. A number are surveying all the organizations which are doing work similar to or overlapping that of the state home economics association. Every state was requested at the Corvallis meeting to make such a survey, and report the results at the Chicago meeting. Will every state be ready to report? Has such a survey been started in your state? What will your councilor say for you at the roll call of states? There are, approximately forty-two thousand trained home economics women in this country. Should not at least fifteen per cent of them belong to their national professional association? The only way in which it can be done is by every state doubling its membership. Every member needs only to bring in another member. It means comparatively little individual effort, and yet the cumulative result will be tremendously inspiring.

As a professional group we should be anticipating the needs of tomorrow, interpreting the trend of educational movements, making our place in the big program for human betterment. Home economics is no longer confined to the class room but is represented in business, social service, hospitals, commercial cafeterias, college dormitories, extension work, and among homemakers. The teaching group is obviously the best organized, the oldest and the strongest portion of the state associations: on it rests the responsibility for widening the horizon and interests of the state association. Everything depends on the vision, broad interests, and profound professional responsibility of the state association. The national situation is still in the moulding, it is but a composite of the states' reactions and the states' interpretations.

There is much to encourage; there is much also to make one ponder over what we shall make of our professional future.

MARY E. SWEENY.

Sour-Milk Therapy. Some years ago, buttermilk soured by Bacillus bulgaricus enjoyed a popularity as a therapeutic measure for constipation and intestinal toxemias. Its failure to meet the claims of Metchnikoff, its chief advocate, has arrested its popularity with medical men, however; even admitting beneficial results from buttermilk diets, the effects are no doubt due to causes other than that which was originally claimed, namely, the change of the bacterial flora in the intestine to a predominantly B. bulgaricus type with an acid instead of an

alkaline reaction which minimizes putrefactive decomposition. The B. bulgaricus has been found to be transplantable in the human intestine to such a slight extent as to have a negligible effect upon the bacterial flora there.

A revival of interest in sour-milk therapy has followed the successes of several recent attempts to implant or to increase in numbers (since it is a natural inhabitant of the human intestine) another high acid producer, B. acidophilus. Rettger and Cheplin (1) have used milk soured by B. acidophilus with such beneficial results that others are also studying it; for adult subjects 1 quart of a milk culture containing 100 grams of lactose is the usual dosage and this is given in addition to the regular diet. Whether improvement is due to bacterial changes as claimed or to other causes, the fact remains that many cases of constipation and intestinal toxemias have been reported to yield to the treatment, and Kopeloff (2) believes it to be a truly bacteriological phenomenon. More conservative users are not yet convinced of the strictly bacteriological effects and Bassler and Lutz (3) even assert that the same positive results can be obtained by the daily administration of lactose which will increase the number of normally resident B. acidophilus organisms and thereby the acidity of the intestine. Kast, Short and Croll (4) write: "If indican excretion may be taken as an index of intestinal putrefaction, it appears that implantation of B. acidophilus in the intestine does not necessarily lower putrefactive processes." At the same time, however, they report favorably upon the milk treatment for constipation.

Experience in the widespread use of milk cultured B. acidophilus is still wanting and even the commercial preparations of the organism which have come to the attention of Kopeloff are, he says, not deserving of recommendation. Judgment is being withheld by many until there is further evidence that the culture is a more specific therapy than its much exploited predecessor B. bulgaricus.

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The Digestibility of Raw Starches. Raw starches of many kinds have been found to be digested and utilized by man as completely as the cooked. These recent findings are contrary to the very general belief—no doubt largely due to observations of artificial digestion experiments—that raw starch is digested but very little if any by the human body. The common starches whose digestibility in the raw form has been studied by Langworthy and Deuel,[1] are corn, wheat, rice, and potato. Their studies also include several of those which are less used by people of this country, such as the starches of arrowroot, cassava, taro, canna, and tree fern. The uncooked starch was made an important part of the day's food intake, approximately 33 per cent of the total calories, by combining it with the other ingredients of a frozen pudding.

Healthy men were able to digest more than a fourth of a pound a day of the starch so prepared and the completeness with which they absorbed it was very nearly 100 per cent in the case of corn, wheat, rice, cassava, and taro starches. Some of the other kinds, for example potato, canna, and commercial arrowroot, were much less thoroughly utilized; potato starch in this large quantity was digested to the extent of only 78 per cent, but when the amount eaten was reduced to about two ounces it could be absorbed practically as well as the corn, wheat, et cetera. The canna starch whose granules are very large also, showed a coefficient of digestibility as low as 53 per cent in some individual subjects. The authors point to the fact that the starches of very large sized granules are those which offer in the raw form the most resistance to digestion, possibly, as they say, because of either the lessened surface area in contact with digestive agents or the heavier cellulose covering in the larger grain.

In the investigations here mentioned no attempt was made to measure ease or quickness of digestion, therefore the findings should not be construed as arguments for an indiscriminate consumption of uncooked starch. Still they do demonstrate that the starchy portion of such raw foods as may be eaten by man have a very good chance of being used by the body. No data are supplied concerning the digestibility of the starch held within the cellulose network of vegetable foods, but it seems possible that the disciples of the raw food doctrine derive considerable nutriment from the starches of their plant foods.

SYBIL WOODRUFF.

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Cora I. Davis, State Supervisor of Home Economics Education for Illinois died January 8, 1923, at the Del Prado Hotel in Chicago. Miss Davis had not been well for the past two years and was granted a leave of absence on October 1, 1921, which her friends had hoped would result in her recovery to health.

Miss Davis was the first State Supervisor of Home Economics Education in Illinois. She was intensely interested in vocational education and worked earnestly and diligently to establish the vocational homemaking work in that state. How well she succeeded can be attested by the strong vocational organization in the state.

OPEN FORUM

Does it Pay to Sew at Home? During the past two years, in the Department of Clothing and Textiles at Kansas State Agricultural College, the students taking the course dealing with problems arising out of clothing the family have accumulated data relating to the cost of making garments at home, as compared with the cost of similar garments for sale in the shops. The garments studied included those worn by various members of the average family of five. Articles of wearing apparel for the father are limited to shirts, underclothes, night garments, and dressing gowns. Suitable garments for small children and infants are comparatively simple in design and construction. For the mother and the grown girl, the range of selection is wide and the styles and uses are infinite in variety. The accompanying table is based on reports of garments actually made for special persons.

The theoretical budgets were based on incomes around two thousand dollars per year. For very obvious reasons, no limit was placed on the cost of the garment to be constructed, save that imposed by good taste. The procedure for making plans was the same, regardless of the kind and quality of the garment to be constructed for the specific individuals. At the opening of the semester, the outline of the course was put into the hands of the students, so that each knew the kind and number of garments to be made, together with the bases upon which these garments were to be planned. They kept their eyes open for ready-made garments which met the requirements in quality and

design. Data were collected sufficient to reproduce the selected garment, so that a comparison of the two might be made upon the cost of materials, similarity of construction, and design.

Most of the students are 20–22 years of age. All have had one year of college sewing or its equivalent, and so have a fair degree of technical skill. Most of them are accustomed to sewing at home and so have acquired some judgment. They are neither appreciably slower nor quicker at sewing than the ordinary woman of the same age. Going to other classes makes as many interruptions as the housekeeper can show from her various duties, so that the results may well be compared with results produced by as many women under conditions of everyday life, throughout this state.

Slight variations which did not involve the use of extra or fewer materials or a difference in amount of energy or work were permitted in order to allow individuality of expression. All such changes must have met the approval of the instructor in charge. Any change of color or color combination might be freely made. When the finished garments were not judged comparable with the models, the records were not used.

Three hundred students took this course during two years, working under the direction of the same four instructors. Each student made the equivalent of four garments. When less than 6 garments of any one kind were made, no report is given here. The following table gives the results of the experiment:

GARMENTS USED IN STUDY		NUMBER HOURS IN MAKING		PRICE OF LABOR PER HOUR	
Number	Kind	Average	Range	Average	Range
30	Shirts	13	8–18	$0.16½	$0.08 to $0.30
20	Skirts (wool)	10	6–16	0.49	0.10 to 1.22
26	Dresses, child	10	6–18	0.15	0.07 to 0.19
40	Underclothes, child	7	6–8	0.07	0.04 to 0.20
42	Dresses, adult	24	7–49	0.615	0.17 to 1.75
40	Night garments	8	7–9	0.10	0.02 to 0.59
25	Blouses	13	6–20	0.21	0.08 to 0.50

It is interesting to note that the highest rates were not always made on the expensive garments. In the $1.75 per hour case, the model cost $49.75, the materials $14.64, and the time was twenty hours for making. In another case, the model cost $49.50; the materials to copy cost $26.50, the time to make was twenty-eight hours and the rate per hour was $0.80. Again, one model cost $79.00, the materials to copy cost $23.40, but the

time was forty-four hours; thus the rate was reduced to $1.22 per hour. On the other hand, a model which was priced $15.00 in the shop was copied for $8.73 in seven hours. Outer garments are more profitable to make than undergarments, if the sewer has any ability in producing, or reproducing style.

The making of shirts at home has not had a fair chance. Students are just becoming accustomed to the idea that any careful woman can make a well constructed shirt. The first year, the results from shirt making were not satisfactory; the second year, results were better. Slowness of work, inaccuracy in cutting or in some construction processes were the cause of low rates. The slow worker always shows a low rate.

It would seem therefore that it pays to sew at home, if there is no other job at hand which pays better. However, money is not the criterion for the decision. Health, happiness of the family, and other duties may be alternatives of more importance than financial returns.

LOUISE PHILLIPS GLANTON,
Kansas State Agr. College.

The Handling of Money by Women Students. The Household Management class at Michigan Agricultural College conducted an investigation in the fall of 1921, as to the money habits of 100 women students at the College. Questionnaires covering the following topics were given to 20 women from each class and to 20 special students:

I. Method of receiving money
  a. Indefinite sums at indefinite intervals
  b. Allowance
  c. Free access to family funds
  d. Earned money
II. Items covered by an allowance
III. Keeping accounts
IV. Saving habits

The outstanding facts of the investigation are:

I. Over half the students, 54 per cent, have an indefinite money relationship with their families; that is, they ask or receive indefinite sums at indefinite intervals.

Fifteen per cent of the students are "trusted sufficiently" (quoting one student) to check out money as they need it from the family account.

Less than one-fifth, or 18 per cent, have definite allowances.

More freshman than upper classmen come to college on their own money.

II. Most of the allowances cover the same items; board, room, college fees, books and supplies, clothing accessories, amusements, and luxuries. Clothing is omitted in two-thirds of the cases and laundry in one-half the cases. The reason for the latter omission is that many students send their laundry home; the reason for the former is probably that most students purchase their clothing at home during vacations. A clothing budget would seem to be a rare thing.

III. Disregarding data from the sophomore class who are required to keep accounts, less than half, or 40 per cent, of the students keep accounts regularly, about 30 per cent keep them occasionally, and about 15 per cent have never kept accounts. Approximately the same per cent have ceased keeping them. Only 4 per cent attempt to plan expenditures ahead. Only 11 per cent keep departmental accounts. In the correlation tables, certain facts appeared, if one generalizes from 100 cases. (There are about 400 women students at Michigan Agricultural College.) Access to the family checking account is least conducive to the keeping of records of expenditures; while 61.5 per cent of the students earning their own money keep accounts. Of the students on allowances, 45.4 per cent keep accounts as against 39 per cent of those who have indefinite methods of receiving money.

IV. There is very little regular saving, as is to be expected, but about one-fifth, or 21 per cent, make spasmodic attempts at saving. Most of this saving is through savings accounts, but one student had an endowment policy.

From the standpoint of saving, the allowance plan would seem most favorable. One-third of the girls on allowances save something, while the figures for the college as a whole are slightly over one-fourth, or 28 per cent. It is to be expected that fewer girls earning their own money would be able to save.

IRMA H. GROSS,
Michigan Agricultural College.

The Big Sister Club. The article, "Education for Parenthood" in the February number of the JOURNAL, contained a discussion of some of the methods which are being used to solve this problem. The Massachusetts Junior Extension Service has recently been carrying on a project, The Big Sister Club, which is also tending to train girls for parenthood. Through two experimental seasons, the Big Sister Club in Beverly, Mass., stands successful with a growing amount of interest and

enthusiasm on the part of leaders and club members. Because of the opportunities it affords those doing the work to become better homemakers, the leaders feel that it has come to stay.

The purpose of the Big Sister Club is to meet the need for a better knowledge of the care and training of children in communities where the responsibility of dressing, caring for, amusing, and even feeding the baby of the family falls upon an older sister.

The members promised to take care of one or more children under six years of age, and to select four activities which they could do at least four times a week. These activities taught the girls directly and indirectly some of the fundamentals in child care, child welfare, and child psychology. Washing and bathing babies included the necessity for the care of the eyes, ears, nose, mouth, and teeth, the understanding of the value of sponge baths for tiny or sickly infants, and the correct manipulation in the performance of these duties; dressing the child gave the girls an opportunity to learn, not only the actual process, but also the proper types of clothing according to age and season; putting the child to bed meant learning the art of bed-making, as well as undressing the child, and methods for inducing sleep; preparing food for the child brought before these girls the study of correct food, according to ages, dangers of over or underfeeding, the care of food, milk, and bottles, and the preparation of modified milk; entertaining the child taught them methods of play and games, suitable for various ages, and the need for daily exercise along with hours of rest.

Of course, if the leaders had not been keenly interested themselves, the value of these activities would not have been so far reaching, but every club meeting was planned to teach some particular phase of the work in which the club members were engaged. First, the little children were brought to the Health Center to be weighed and measured. Each month this was repeated, while the girls found much enjoyment in keeping charts. In the summer, some meetings were held at a park, where the girls experimented with forms of amusement for children of different ages. One meeting was devoted to a discussion of foods for children, with emphasis on what the older sister can do in setting an example for the younger children in proper food habits and good table manners.

But the climax of the club period was the Achievement Day in the form of a Christmas party for the club members, their young charges, their mothers, and their friends. The program included simple talks about clothing for children, food for children, and other subjects related to the

activities which the girls had chosen. Demonstrations were given by the members. Because these girls had actually done the things which they were demonstrating, there was an unusual earnestness and reality to the whole entertainment. The Christmas tree was the feature of the afternoon, for it had been trimmed entirely with decorations made by the girls. No glittering expensive colored glass balls for them! They had lanterns and chains of colored paper, gilded nuts, strings of popcorn, cranberries, and macaroni, queer shaped ginger cookies, cornucopias, and the toys for the children. The children were gleeful; the girls were proud and pleased with the result of their labors.

It has been interesting to watch the development of these Big Sisters, for in their work they have shown a surprising sense of responsibility, particularly in their own health and food habits. The project has been of real demonstrational value to the homes of the community, for bedsides giving immediate help to the mothers and good times to the children, the club has developed in the girls a charming sweetness and tenderness of character.

DOROTHY W. MURDOCK,
Mass. Agricultural College.

A Ford Budget. Perhaps the following figures may be of interest to those working with budgets. They are an accurate record kept by the owner who is a careful driver. The machine was in good condition when purchased and repairs were light.

Cost Of Operating A Second Hand Ford Sedan, April To October, 1922

Gasoline	$66.18
Tires	50.90
Insurance	28.80
Garage and Parking	27.35
Repairs—Labor	21.25
Battery	20.50
Repairs, parts, spark plugs, timers, etc.	9.34
Additions to equipment, clock, stoplight, trouble light, wind shield cleaner, mirror, door pocket	10.00
Oil	7.40
License	6.00
Tools	4.42
Lessons	4.00
Sundries	3.03
Total	$259.25

An average for six months of $43.21 per month.
Mileage, 4600 miles.
Gasoline, 250 gallons.

BOOKS AND LITERATURE

The Nutrition of Mother and Child. By C. Ulysses Moore, M.D. Philadelphia: J. B. Lippincott Co., 1923, pp. 234. $2.50.

Members of the Association who heard Dr. Moore at the Corvallis meeting will greet with special interest this lively defense of the thesis that practically every mother can nurse her baby if she is properly instructed and cared for. Dr. Moore's point of view results in a very different distribution of subject matter from that found in most books on infant care intended for the mother's use. The treatment of artificial feeding is brief; the treatment of the problem of maternal feeding is enthusiastic, vigorous, and detailed. The author succeeds very well in carrying out the promise of the title, namely in considering the nutrition of the mother and child as a unit problem.

The careful reader will find a few points at which the writer has slipped in his interpretation of the recent vitamin literature, but it would be a mistake to overemphasize this point, for the general impression given by the book is essentially right.

The book will be invaluable to the nurse or doctor who wishes to provide his intelligent patient with literature which will convince her that it is important that a baby shall be breast fed, will instruct her in regard to diet during the pre-natal and nursing period, and in regard to the establishment and maintenance of her milk supply. Possibly there are general practitioners and nurses who will find a failing faith revived by this optimistic and sensible statement from a doctor who has had extended clinical experience.

The book should be read by every home economics woman who teaches dietetics either formally in a class room or less formally in family case work. Have we as home economics women not sometimes sinned in giving a disproportionate amount of time to the discussion of milk modification to the neglect of the consideration of problems which center around maternal feeding?

Getting Ready to Be a Mother. By Caroline C. Van Blarcom. New York: The Macmillan Co., 1922, pp. 237. $1.50.

This simple but very comprehensive book of Miss Van Blarcom's fills a much needed want. No other book, to the reviewer's knowledge, gives such a clear, accurate presentation of the whole subject of maternity care in a short compass in language both clear and non-technical. We have combination books covering pre-natal, natal, and post-natal care but no one book which is adequate and up to date on all sides of the care of the mother. Again this book is unusually full and satisfactory on nutrition of the child during the entire period of pregnancy and the first year of life. Most writers dismiss the question of the mother's diet with a word, such as "she may eat what she is accustomed to" or "take a good nourishing diet." Miss Van Blarcom gives full emphasis to the food constituents which help to build a vigorous well-developed child, and a careful explanation of what disasters may follow inadequacy of diet through the entire life history of the infant. The last chapter in the book on deficiency diseases is a clear and well thought out simple presentation of the subject, which will be helpful to the average mother in the proper selection of foods.

One of the few omissions of an important point that can be pointed out is the cursory treatment of the thyroid gland on p. 18. In the goitre belt of the United States, an area not limited even to the northwestern states but including parts of Michigan, Wisconsin, and Minnesota, the prevention of goitre during pregnancy and lactation is a public health problem that cannot be neglected. Therefore, the necessity of giving as a routine part of the maternity care the small amount of iodine needed to prevent this enlargement in the mother and possibly to affect the glands of internal secretion of the child, should be clearly stated. The giving of sodium iodide as an ingredient of table salt is in many ways the easiest and surest method for general use.

The expression of milk is also not given in detail nor the necessity of the mother so emptying the breasts, if the infant will not or cannot properly stimulate the breasts so as to establish lactation.

A schedule for the care and feeding of the infant at the different age periods should be added, since many mothers have to rely on a manual when a physician's supervision is not possible. In such a schedule, the periods at which the average child, both breast fed and bottle fed, should be given foods such as orange juice, cereal and vegetable pulp, or soup, should be definitely stated.

It seems ungracious to emphasize omissions in a book so full of important material often slighted and one in which the subject matter is so clearly and accurately presented in simple language.

DOROTHY REED MENDENHALL, M.D.,
University of Wisconsin.

Dietetics for Nurses. By FAIRFAX T. PROUDFIT. New York: The Macmillan Co., 1922, pp. 524. $2.60.

The revised edition of *Dietetics for Nurses* is an excellent step toward satisfying the need for a text book for student nurses. It is generalized in many respects to fit the demands of each and every hospital along dietary lines. It can be recommended to the dietitian as a text book for her own study and as a reference book for the student nurses. However, the theory given in it is often technical and requires for its understanding a vast knowledge of chemistry which the average student nurses do not have or receive. The treatment of the subject matter in relation to diet in disease has been quite thoroughly covered and gives one a fundamental theoretical basis from which a detailed practical study may be built. In general it is a text book on dietetics and not a cook book or a laboratory manual. It does not attempt to be the latter. It can, therefore, be used to advantage as supplementary or source material for lectures in theory.

BRETA M. LUTHER,
The Children's Hospital, Boston.

Fabrics and How to Know Them. By GRACE G. DENNY. Philadelphia: The J. B. Lippincott Company, 1923, pp. 146, illus. 49. $1.50.

This book has as its purpose the presentation of usable information about fabrics which are purchased by the yard on the retail market. It is of convenient handbook size. The material is divided into the following three parts: *Part I* gives definitions and brief descriptions of all staple fabrics and of terms relating to textile fabrics. This portion of the work is arranged alphabetically.

Part II presents simple tests of a practical nature by which one may determine the quality and durability of the various types of fabrics. The tests are given in a concise and non-technical manner.

Part III gives a classification of textile fabrics (a) by cloth structure, and (b) by trade names.

A valuable list of reference books of importance in a study of textile fabrics is given. One of the most valuable features of the book is the carefully selected group of illustrations which appear in Part I. These consist of photographs of representative fabrics. Many of these show a slight magnification, which brings out the weave of the cloth with remarkable clearness.

The book is of inestimable value as a reference book (1) for students and teachers of clothing and textiles in high schools and colleges, (2) for managers, salespeople, and buyers dealing with fabrics and ready-to-wear goods, and (3) for the buying public.

PAULINE GRACIA BEERY,
The Pennsylvania State College.

Applied Science Course for High School Boys. Home Economics Circular No. 16. U. S. Bureau of Education.

The circular suggests two very important objectives which should be emphasized in all teaching—health and worthy home membership. The idea of such a course and its application to boys is excellent. Efforts should be made to interest science teachers in this phase of the work for boys. Many

of the suggestions could be incorporated in the already existing courses in high schools. The cost of living outline could be made a part of a course in economics very advantageously. Emphasis should be placed on elementary nutrition and every day healthful living rather than camp cookery and the technique of food preservation. These latter two do not function to any great extent in the life of the boy. Selection of food, food values, diet to meet bodily needs, special diets for athletes, growing boys, constipation, etc., should be emphasized. The study of hotel and cafeteria menus and drill in selecting such menus, and why they are rightly chosen; simple meals prepared and served to teach preparation of foods, table manners, duties of the host, etc., would be valuable. Many of the facts learned in physiology in the grade classes could be emphasized and through various means be made to function in the life of the boy. Every day manners might also be included. The idea of the course is indeed, very good, but as it is worked out there is not enough content to warrant it as a separate course or to take the place of a fundamental science course in the high school curriculum.

Current Problems in Home Economics. Instruction and Supervision. Home Economics Circular No. 14. U. S. Bureau of Education.

This report is interesting because of the wide range of territory it covers. Interest in child health work is a step in the right direction. If the home economics courses could be planned for junior high schools and two years of senior high school, many of our difficult problems and differences in curriculum making would be solved. In setting up a minimum standard, fifty-five or sixty minutes seem too short to allow for proper training in housekeeping habits, comparison of results, and baking processes in a food laboratory. The meal plan suggested as the method for teaching foods does not seem to agree with the minimum of two hundred and twenty or three hundred and ten minutes per week. How can this time be reconciled with meal work or the suggestion of serving the non-meal to teachers? What part of this can be accomplished in sixty minutes?

Recommendations of value to junior and senior high school teachers were as follows: 1—That intensive work for ninety minutes daily for one semester is preferred to ninety minutes twice per week for one year. 2—Teachers should be trained in all phases of homemaking work and not take an uneven training or specialize in one or two subjects. 3—That semester units of work elective for all girls were more valuable than a fixed sequence of courses open only to those enrolled for the full course. 4—That such courses should be differentiated for the commercial course students and carry less credit. 5—That Home Economics, worthy of senior high school credit, will require real study and definite research. It should require as high a standard of scholarship as any other course of equal weight in the curriculum. 6—That every teacher should meet community needs and establish community contacts.

The statement of what a seventh grade girl should know at the close of the year should be carefully considered. It is as follows: "At the close of the seventh grade a girl should know how to do simple sewing by hand and machine; how to use a commercial pattern; how to make such garments as plain underclothes and simple gingham outer garments; how to launder and how to mend cotton garments; and how to select suitable materials. She should have developed a greater interest in the household operations within her own home, a willingness to serve other members of the family and a desire to lessen her mother's labor. She should know what food materials are essential to the maintenance of her own health, how to read and interpret a simple recipe, and how to regulate cooking temperature. She should be able satisfactorily to prepare alone a plain meal such as breakfast or supper, to care for raw or cooked food, and do all necessary dish washing and kitchen cleaning. She should be able to care for her own room and to do as much work in the home as she herself makes necessary."

How can a seventh grade girl learn and be able to do all this work with two hundred and twenty minutes per week of instruction? Is this not too much to ask any teacher to accomplish? Our young teachers are bound to fail if this is their goal.

The objectives determined upon are of especial value and are well defined as follows: to cultivate an appreciation of home life; to aid in forming right food habits; to promote home helpfulness and to teach the use of common household equipment; to stimulate an interest in the reasons for as well as methods of doing certain household tasks; to develop judgment and to cultivate intelligent choice in food, clothing, and shelter; to assist in establishing ideals of ethical conduct and to awaken a desire for worthy use of leisure. There is much food for thought in this circular for young teachers and all persons interested in training teachers should have it.

FLORENCE HARRISON,
State College of Washington.

What Shall We Have to Eat. By JENNIE ELLIS BURDICK. New York: The University Society, 1922, pp. 128.

The author calls her book a practical plan for choosing the right foods for every occasion. Appropriate foods for breakfast, luncheon, dinner, the party, and the picnic are listed alphabetically and the housewife in running over the lists will receive suggestions as to choice and combinations. There is a simple chapter on the balanced meal which precedes these lists of foods. The chapter "What Shall we Feed the Children" is prefaced by some introductory statements on children's dietaries by Dr. S. Josephine Baker. Ruth Yerkes, assistant dietitian of Bellevue Hospital, has prepared a number of lists for the selection of invalid diets. Chapters on foods for those who wish to reduce and for those who wish to gain, and a chapter on marketing are included.

The book is practical for the purpose of offering suggestions to the housewife. It is nicely printed and would make an attractive gift for young housekeepers.

Practical Talks on the Care of Children. By MARY E. BAYLEY. New York: E. P. Dutton & Co., 1922, pp. 344. $2.50.

This book as its title indicates is very practical, couched in language which the lay person can understand and told in such a simple straightforward manner that it makes fascinating reading.

Beginning with the first chapters on the care of the new born, to the last where the child has grown to school age, the author sounds the keynote of the whole book which is "prevention." In the care of children, not only is eternal vigilance required to guard against disease and wrong food and health habits, but behavior problems must be watched and adjusted, correct speech habits must be instilled, speaking voices cultivated, and last, but not least, there should be no overstimulation but plenty of rest and sleep.

As Miss Bayley sees the relation of everything to the whole, all things are equally stressed—food, water, air, rest, clothing, including correct shoes, formation of proper health and behavior habits, posture, and the well modulated voice. Instruction is also given as to how to care for the ill child and, equally important, how to protect the other children, your own and your neighbors.

One might, after reading a book like this, hesitate to attempt child care because of the magnitude and complexity of the problems, but all these problems are not found in each and every child, neither do all the problems present themselves at the same time for solution and the mother or teacher has an opportunity for growth with the child.

LOLA G. YERKES,
Merrill-Palmer School.

A Scale for Estimating Minimum Budgets for Dependent and Independent Families has been prepared by the Visiting Housekeeper Association of Detroit. This includes food, clothing, operating expenses, rent, furnishings, recreation. A family clothing budget, and a minimum family budget covering all expenses are given. Single copies in mimeographed form will be furnished free.

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NEWS FROM THE FIELD

THE ANNUAL MEETING OF THE AMERICAN HOME ECONOMICS ASSOCIATION

Chicago, July 30 to August 3

Who's Who on the Program

At the present writing there are seventy-two names on the program. Of these, fifty-five may be classed as home economics people with active positions in home economics organization, and seventeen as men and women whose work and interests are closely related to home economics. This brief "Who's Who" will mention only a few of these, in view of the final program to be published in the June JOURNAL and to be sent as a separate publication to all members of the Association.

Dr. Blood, Miss Sweeny, Miss Bevier, Miss Richardson, Miss Wardall, Dr. Thompson, Miss Winchell, and many others have been too active in our Association to need any further introduction.

Mrs. Helen T. Woolley is assistant director and child psychologist at the Merrill Palmer School, Detroit.

Dr. Walter H. Brown is the director of the demonstration in child health, put on by the National Child Health Council as a county wide experiment in Mansfield, Ohio.

Dr. Walter H. O. Hoffman is a Chicago pediatrician and an attending physician at the Children's Memorial Hospital.

Dr. Grace Abbott, Chief of the U. S. Children's Bureau, is well known to home economics workers because of her efforts for better health, better legislation and better social and economic conditions for children.

Mr. Donald Nelson is a textile expert in charge of the men's and boys' clothing departments of Sears Roebuck and Company, Chicago.

Rena Eckman, formerly head dietitian at the University of Michigan Hospital, has recently accepted a similar position at the Michael Reese Hospital, Chicago.

Dr. Sophonisba Breckinridge, University of Chicago, is on the staff of both the Department of Household Administration and the Graduate School of Social Service Administration.

Dr. Charles H. Judd, Director of the School of Education, University of Chicago, of which the Department of Home Economics is a part, is well known for his many writings on educational subjects and his activities in nation-wide educational organizations as well as at the University.

Dr. Ernest D. Burton, who has recently been appointed acting president of the University of Chicago on the retirement of President Judson, will open the Chicago meeting by welcoming the Association to the University.

Hotel Accommodations

Hotel Headquarters will be at the Windermere East. It is ideally situated for a summer meeting, as it is but a block from Lake Michigan and faces Jackson Park with its tennis courts, golf links, bathing beaches, lagoons, and greens. The rates are from $3.50 to $5.00 per day for single rooms and from $4.00 to $7.00 per day for double rooms. The hotel is generous in its offer of rooms for group meetings and conferences. Much of the benefit of the annual meeting comes from the social intercourse with persons from all parts of the country, and the Windermere headquarters will furnish ample opportunity for these meetings. The Homemakers' Committee is requesting that this group be housed together in one section of the hotel.

A smaller hotel somewhat nearer the university is the Del Prado, which is located on the Midway and is also near Jackson Park. The Del Prado can care for a small number of transient guests at rates running from $2.50 to $4.00 per day.

For those who are planning to make a longer stay in the city it is desirable to apply to the Housing Bureau of the University of Chicago. Since our meetings are to be held during the second term of the summer session, when the university is less crowded, it will be possible to use some of the rooms which are usually rented to university students. These rooms range in price from $6.00 to $8.00 per week.

Members who prefer a downtown hotel are referred to the Hotel La Salle, the Auditorium, and the Congress. In all cases reservations should be made directly with the management of the hotel selected.

Special Railroad Rates

A reduction of one and one-half fare on the "certificate plan" will apply for members attending the meeting of the American Home Economics Association, and also for dependent members of their families. The arrangements hold good from all points covered by Passenger Associations of the United States and from all points in Canada covered by the Canadian Passenger Association.

The following directions are submitted for careful attention: 1. Tickets at the regular one-way tariff fare for the going journey may be obtained on any of the following dates (but not on any other date) July 26–August 1. Be sure that, when purchasing your going ticket, **you request a certificate.** Do not make the mistake of asking for a "receipt."

2. Present yourself at the railroad station for ticket and certificate at least thirty minutes before departure of train on which you will begin your journey.

3. Certificates are not kept at all stations. If not obtainable at your home station, the agent will inform you at what station they can be obtained. You can in such case purchase a local ticket to the station which has certificates in stock, where you can purchase a through ticket and obtain a certificate.

4. Immediately on your arrival at the meeting, **present your certificate to Miss Nina Streeter,** Chairman of the Travel Committee, as the reduced fare for the return journey will not apply unless you are properly identified as provided for by the certificate.

5. Arrangements have been made for **validation of certificates** by a Special Agent of the carriers on July 30–August 3, if the **required minimum of 250 certificates is presented.**

6. No refund of fare will be made on account of failure to obtain a proper certificate or on account of failure to have the certificate validated.

7. The reduction on the return journey is contingent on the presentation of 250 regularly issued certificates obtained from ticket agents at starting points, showing payment of regular one-way tariff fare of not less than 67 cents on going journey.

8. If the necessary minimum of 250 certificates is presented to the Special Agent as above explained, and your certificate is duly validated, you will be entitled, up to and including August 7, 1923, to a return ticket via the same route over which you made the going journey, at one-half the regular one-way tariff fare from the place of the meeting to the point at which your certificate was issued.

9. Return ticket issued at the reduced fare will not be good on any limited train on which such reduced fare transportation is not honored.

It is very important that you coöperate by securing a certificate, even if you do not expect to return by the same route, as no one will get the benefit of the reduced fare unless 250 certificates are presented.

A special car will be arranged over the B. and O. R. R. from Washington, D. C. Further information will be issued later.

ALABAMA

Teachers of home economics in accredited high schools who teach the second year of home economics will be required to hold a special professional certificate in home economics beginning with 1923–24. Such a certificate is based upon the completion of a four-year approved course in home economics. It must include thirty hours in home economics, eighteen in related science and art, and eighteen in education. Definite requirements are also set up regarding laboratories, teachers' qualifications, facilities for practice teaching, and other equipment.

Approved teacher training courses in home economics hereafter will base their home economics courses upon two units of high school work. A committee of nine representing the high schools and colleges has been appointed by the state superintendent to determine the accomplishments in knowledge, appreciation, and skill which may be expected of girls who have completed two acceptable high school units.

INDIANA

Indiana State Home Economics Association. A plan which is bringing results has been worked out by the membership committee. One home economics worker in each county in the state was appointed to secure members in her county. Through the efforts of these women fifty three memberships were obtained during the month of February. The new officers of the association have made possible the publishing of a monthly "Home Economics News Letter." This appears in mimeographed form and contains brief articles on current news in the state and announcements of meetings and programs. It affords a method of reaching every member and is doing much to stimulate interest in the local as well as the national organization.

Home Demonstration Agent Exhibit. The State Fair Board of Agriculture and the Indiana Farmers Federation held an exhibit of interest to Farm people, at the State Fair Grounds, February 19–24. The exhibit was made by the women and the home demonstration agent of Hendricks county. Clothing, Girls' Sewing Club work, nutrition, and household conveniences were featured. A large rack, five feet high, the shape of a quart jar was filled with vegetables canned by the cold pack process. Meat and types of canning equipment were shown.

The exhibit was arranged and placed by a committee of county women, one of whom was in charge each day.

MICHIGAN

A Home Economics Club was organized at the Michigan Agricultural College during the fall term of the present school year. At the meeting of the American Home Economics Association held in Detroit, the local club affiliated with the State Home Economics Association.

During Farmers' Week, the Home Economics Club conducted a cafeteria in Morrill Hall, one of the girls' dormitories. Several hundred people were served twice each day during the week. "Michigan Food for Michigan Folks" was the slogan, and everything served, with the exception of tea and coffee, was produced within the state. The proceeds will be used to establish a scholarship fund for junior and senior girls in the Department of Home Economics. The project was pronounced a complete success.

At the present time, the club is coöperating with the Home Economics and Physical Education Departments in a health campaign. When the new home economics building is completed, the club will have definite rooms assigned to it, and will be able to work to better advantage. It is hoped that next year the club will function as an open forum for the co-eds, and will be able to complete its plans for issuing a paper.

MONTANA

Farmers Week. January 8–13 were the dates for the annual Farmers and Homemakers Conference held at the Montana State College in Bozeman. Dr. Caroline Hedger gave a series of lectures on "Nutrition and Health." Miss Sweeny and Miss

Frysinger were the other out of state speakers. The week was one of the most successful ever held in Montana and the attendance was large.

A District Meeting for Teachers was called by the Montana State Supervisor, Edith Franks, at Bozeman on January 6th. The Meeting took the form of a round table discussion of practical problems. Miss Sweeny was the speaker in the afternoon. Another District meeting was held in Great Falls March 17th.

A State Council Meeting was called by Anna M. Turley, President of the Montana Home Economics Association, at the time of Miss Sweeny's visit to the State. After going over the problems of the State Association carefully Miss Sweeney discussed some of the important functions of the National Association and emphasized the necessity of a more wide spread and active interest in the affairs of the A. H. E. A.

Mabel V. Campbell, Federal Agent for Home Economics with the Federal Board for Vocational Education visited Montana in the early part of January. She inspected the two Teacher-Training Institutions—the State College at Bozeman and the State University at Missoula—the day school work at the Gallatin County High School and the evening work at Bozeman, Deer Lodge, and Anaconda.

Phi Upsilon Omicron. The Epsilon Chapter had the honor of initiating Miss Sweeny as an honorary member of that organization during her recent visit to Bozeman. Blanche Lee, Assistant State Leader of Home Demonstration Agents for Montana was in charge of the Installation of a chapter of Phi Upsilon Omicron at Utah State College at Logan, March 10. Later she visited the Wyoming and Idaho chapters as official inspector.

NEBRASKA

The Home Economics Section of Organized Agriculture met at the State Agricultural College Jan. 2 to 4 with an attendance of over 300. Each of the sessions was opened by music under the direction of Mrs. Carrie B. Raymond, Director of the University Chorus. The theme for the week was "Better Homes for Nebraska." This was emphasized through such topics as: Prevention of Crime through Better Homes by Judge W. W. Morning; How the Extension Service can Help to Improve the Farm Home, by Director W. H. Brokaw; the Influence of Good Literature, by J. W. Searson; The Home Maker's Duty as a Citizen, by Anna B. Kramph; Inexpensive Furnishings for the Boy's Den or the Girl's Room, by Alice Bradt; Relation of the Homemaker to the Business World and the Home as an Institution, by Mary Sweeny.

Various vocations for women were discussed by women who have been successful in business. Delegates from the various counties gave reports upon the extension work done during the past year.

District Conferences. Birdie Vorhies, Supervisor of Home Economics, held district conferences at Scottsbluff, Kearney, Lincoln, and Oakland during December and February. Attendance is not compulsory but the conferences were well attended. The discussions centered around these topics: How to secure Coöperation with the Mothers to Make Home Economics Instruction Function in the Home, Means of Teaching Health Practices to High School Girls, Practical Projects in Home Management and House Furnishing, Educational Possibilities of the School Lunch, Content of Related Art Courses and Its Practical Application. At Lincoln and Oakland Home Agriculture courses were also discussed.

At York the home economics teachers in conference were treated to the production of the little play "Omelet and Oatmealia," by the high school home economics girls under the direction of the home economics teachers, Beulah Winburn and Dorothy Montgomery.

The State Home Economics Association met in Omaha, January 19, at the time of the Annual State Teachers Association meeting. About 60 teachers were present. Birdie Vorhies talked on Problems of the Home Economics Teacher; Mrs. Brown, Chairman of Applied Economics for the Nebraska Women's Clubs, on Coöperation for Better Homemaking; and Mary Sweeny, on Home Economics Today and Tomorrow.

Two phases of work were planned by the association for the coming year: the collection and publication of a "Who's Who in Home Economics in Nebraska," and a survey of agencies interested in home economics in the state.

Courses for Boys. Mrs. Haykin, of the Elliott Junior High School, Lincoln, has two classes of 9th grade boys taking home economics this semester.

NEW YORK

Cornell University. Two seniors from the School of Home Economics are attending the Merrill-Palmer School of Homemaking in Detroit, on a special scholarship given by that institution. They have been granted a leave of absence and a term's residence credit from their own institution. Ohio State University has also taken advantage of the scholarships offered this year by the Merrill-Palmer School. The girls are taking laboratory work in child psychology, child management, child health and nutrition as well as in sociological problems related to the family.

Home Study Course. The first members of the home study course in feeding the family have recently completed their study and have been granted certificates. This is the first course to be conducted as a part of the extension service of the School of Home Economics. It has been conducted by Professor Thurston, nutrition specialist in e.

Practice Hou... The School of Home Economics now has two practice houses with a practice baby in each. Great rivalry exists between the house of Joan, aged one year, and that of Bobby, aged ten months, as to which is the better child in growth and in general behavior.

Summer Courses. Teachers College, Columbia University, will give courses in the 1923 Summer Session on the Economic Problems of the Household, including Social and Economic Problems of the Home by Professor Benjamin R. Andrews; Family Income Management and Thrift Promotion Emma A. Winslow; Housing and Living Conditions and Community Surveys by Mr. Shelby M. Harrison of the Russell Sage Foundation.

The New York Nutrition Council met February 27, at the Red Cross Teaching Center. The afternoon was devoted to current events in the nutrition field. An exhibition was arranged showing illustrative material and current literature.

The March meeting was held at the Manhattan Trade School for Girls, with the following program: How Far do the Principles of General Methods Apply to Nutrition Work? Dr. William H. Kilpatrick, Teachers College; The Adult Problem, Josephine Shayne, Henry Street Settlement; The School Child Problem, Mary McCormick, State Board of Education; The Pre-School Child Problem, Dr. W. H. Donnelly, Brooklyn, N. Y.

The Home Economics Association of Greater New York met March 6 to discuss household engineering. The speakers were Miss Mayer, Good Housekeeping Institute, on Household Equipment as it is Related to Work Processes; Dr. Maurice A. Bigelow Teachers College, on Household Engineering in the College Program; Mrs. Lillian M. Gilbreth, on Application of Research Work in Industry to Household Engineering; Mr. Frederic W. Howe, Pratt Institute, on Probable Future Development in Household Engineering.

Alumni Conferences were held at Teachers College, Columbia University, February 21 and 22, 1923, in honor of James Earl Russell on his Twenty-fifth Anniversary as Dean of Teachers College. The general theme for the conferences was educational growth in America during the past twenty-five years and the contribution of Teachers College.

SOUTH DAKOTA

Dakota Wesleyan University, Mitchell. The Home Economics Department has been working out an experiment under the instructor, Beth Palmer. In lieu of a practice house, President Kohlstedt offered his home to the class for a period of two months, where the instructor and four of the class members lived and took charge of the housekeeping. President Kohlstedt, his wife, and two children were guests of the class.

South Dakota State College, Brookings. The Practice House has, as a member of the

family, a nine months old baby. This is the second child which has received care in the practice house. The first was a young child in need of special nutritional attention who was put under the care of the nutrition class, for special attention and careful feeding. The baby responded to the treatment, recovered, and has been returned to its parents.

PENNSYLVANIA

Carnegie Institute of Technology. Courses for nearly everyone in need of special training will be given this summer. Of particular interest is the announcement of new courses for teachers of home economics, in the Margaret Morrison Carnegie College. As these courses will be given under the provisions of the Smith-Hughes Act, no tuition fee will be charged. The subjects are: special methods in vocational home economics; nutrition; marketing and meal planning; practice house; sewing; and costume design.

VIRGINIA

College of William and Mary. The members of the Regional Conference of the Home Economics Section, Federal Board for Vocational Education, who held a meeting in Richmond, Virginia, visited Williamsburg and the College, January 13. The visitors were shown the site of the first printing press in America, the first theater, the Raleigh Tavern, where the Phi Beta Kappa Fraternity was organized, and the homes of several of the signers of the Declaration of Independence. Later, they went through the college buildings, which are so rich in historic memories. A buffet luncheon was served by the Home Economics Department. The day's activities were ended with a visit to Jamestown Island, where the first white settlers landed in 1607.

The Edith Baer Club, the home economics club of the College, has undertaken the project of supplying the department with sterling silverware. The Fairfax pattern has been chosen.

WASHINGTON

A Nutrition Class among the public school children has just been conducted under the direction of the Food and Nutrition Division, College of Home Economics, State College.

The purpose of conducting the class was twofold. First, to get together a group of children from the city schools whose nutrition needed special attention; second, to give some of the seniors in home economics a chance to put into practice the principles learned in nutrition.

A school, located near the college campus and composed of children in the 1 B to 5 B grades inclusive, was chosen for this work. By means of the usual physical examinations it was found that, in this school of one hundred and thirty-two children, sixty-six were underweight; of the sixty-six, thirty-one were from 7 to 14 per cent below the standard for height. Fifty per cent of the pupils were children of the faculty; the rest came from well-to-do homes of the community.

All who were underweight were invited to attend the class. They met once each week in the home economics building and the lesson was given by a member of the College nutrition class. Important points in healthy living, such as eating slowly, regular hours for meals, going to bed early, open windows at night, getting up early enough to have time for breakfast, clean teeth and clean bodies, were constantly repeated. Emphasis was placed upon the use in the diet of milk, whole cereals, vegetables, and fruits. The lesson was never given twice in the same manner. One time it might be given through story, song, or verse; another time through motion pictures; and still another time by using wax food models and playing cafeteria with the children.

From our experience, we would say that a nutrition class should not number more than fifteen to eighteen pupils, although many times we had as high as thirty. The interest grew remarkably, after the period of "suspicion" was over.

In the fifty-four pupils who attended regularly, there was a gain of one hundred and twenty-five pounds in eight weeks, or an average of 2.3 pounds per child. A certain amount of normal gain was to be expected within this period; although we knew that these children had not been making their normal gain or they would not have been underweight. However, the

members of the class more than doubled their normal gain. The greatest gain made by any one child was 12¾ pounds by a boy, and the second largest gain was 6½ pounds by a girl.

We found the lack of co"peration on the part of the parents to be one of our biggest difficulties. The prevention of over-fatigue on the part of the child was the next hardest problem to solve in the making of the children "free to gain."

WISCONSIN

University of Wisconsin. During the week, January 29–February 3, the Home Economics Department, under the leadership of "Aunt" Nellie Kedzie Jones, extension worker, held a short course for women, which was attended by about 100 housewives from all over the state.

Following out the idea expressed in the slogan, "Better Badger Homes," talks were given on health and home problems. Members of the faculty spoke on diets, and demonstrated on new uses for cheese and milk, the value of salads for vitamines, step-saving in the home, suggestions for pictures, lines and colors in dress, and the paper dress form. The "Ever Blooming Garden" was the subject of an address by Professor J. G. Moore of the Horticultural Department.

Women of National reputation gave special lectures. Mrs. Featherstone from the Elizabeth McCormick Memorial, Chicago, and Dr. Dorothy Reed Mendenhall of Madison talked on child health. Jessie Hoover of the United States Dairy Division at Washington, and Mrs. J. Solburg from the Iowa Farm Bureau told of their work.

A course in advertising, which is being given a trial this year in the agricultural Journalism Department, was organized through the efforts of Hazel Manning. It is planned to give students practice in composing ads for both food and textile work. It has been received enthusiastically by the students, and about thirty upper classmen are taking the work.

Stout Institute. The public school clothing classes, under the direction of student teachers, prepared and presented a play to illustrate the work of the semester. The production contained original songs and was cleverly worked out.

The Superintendent of Schools reports that, due to the health work in the practice classes and in the special nutrition class conducted by Stout Institute students, the percentage of under-weight has been noticeably decreased in the Menomonie schools.

NOTES

Margaret Edwards, formerly of Kansas State Agricultural College is now State Supervisor of Home Economics in North Carolina.

Mrs. Kijo Ochi, Professor of Nara Higher Normal College for Women, Nara, Japan, visited Iowa State College especially to investigate home economics education.

Lucinda W. Prince, Prince School of Education for Store Service, Boston, visited Iowa State College and besides speaking to students and faculty members gave a lecture on The Training of College Graduates for Store Services.

Mabel Randolph, for over three years departmental secretary at the School of Home Economics, Cornell University, has resigned to accept the position of secretary to F. S. Jacobstein, U. S. Representative from Rochester. Miss Randolph has been at the school since January 1, 1920, and before that time was for 10 years secretary to the president of the University of North Dakota.

FOREIGN

China. The following are extracts from a letter from Ava B. Milam who is studying the schools and homes of China with a view to introducing work in home economics throughout the country.

"We had a pleasant voyage, and after a few days in Japan and Shanghai went right to Peking. Miss Mills entered the Language School and became acquainted with our Peking University and Peking.

"After two weeks there I was scheduled to start on this long trip through China visiting schools and studying home life in different sections of the country. So far I have studied along the Yangtse region and am

now in Foochow, a most interesting old city of a million people, situated in a beautiful country. Some of the oldest schools are here and I am now at Hwa Nan College (Women's College of South China). As it has just been granted its charter through New York University, it can grant degrees. It is a most inspiring institution. While at Nanking I visited Ginling College, a promising union college of the Orient.

"On January 4th I go to Canton for about two weeks, making only short stops at Omoy and Swatow. After leaving Canton I visit Manilla, then back to Shanghai, Tianfu, Tsinanfu, Tuntsin and then Peking. In the spring I may get over to West China, but it is not considered wise to go now.

"I am much encouraged over the response to our plans and work. The heads of schools seem eager to introduce the work as soon as teachers can be trained and they say the students will respond readily to this type of education.

"One of the leaders in Shanghai told me that no subject is of greater interest to the students of China today than that of home life. I have been asked to speak in the boys schools and they have seemed just as responsive as the girls.

"I wish you could see the beautiful tapestries, lacquer, porcelains, silks, etc., but much more do I wish you could see the women and children and the homes. Little do the women of Christian lands realize what they owe to Christianity. These four months have also been depressing because of the poverty I have seen but inspiring too because of the progress being made."

Positions in Mission Fields. The Student Volunteer bulletin published by the Student Volunteer Movement, 25 Madison Avenue, New York, contains in its January number, notes of several home economics positions open in different mission fields.

Leeds Students and the King's Grandson. Students at the Leeds Bakery School were honoured with instructions to make the christening cake for the son of Princess Mary and Viscount Lascelles. Under the supervision of Mr. W. H. Quinn, students were engaged in picking fruit, cracking eggs, and weighing out the ingredients for this distinguished cake.

The ingredients are as follow: flour, 12½ lb.; butter, 10 lb.; sugar, 16 lb.; eggs, 10 pints (about 120 eggs); seedless raisins, 6 lb.; currants, 20 lb.; sultanas, 12½ lb.; orange peel, 3¾ lb.; lemon peel, 3 lb.; citron peel, 10 oz.; blanched almonds, 2 lb.; ground almonds, 2 lb.; the juice and rinds of five lemons and five oranges.

After being mixed in a patent electrically-driven beating machine, the mixture was put into the coke-heated, hot-air oven, and baked for four hours. The decorative scheme was designed at the Leeds Art School.—*Education.*

European Student Relief. Five thousand students who were being fed by American charity in the universities of Mocow and Petrograd requested that their ration be cut 20 per cent, in order that another thousand needy students might be fed. The request was granted. The daily meal was reduced from 1500 to 1200 calories, and the number of students accordingly increased from 5,000 to 6,000.

GENERAL

The American Library Association is appealing to libraries to solicit books from the public and to send books from their duplicate collections for use in the American Library in Paris, and for use in meeting the requests for American publications which come from other countries in Europe. Shipping instructions will be sent by the Secretary of the A. L. A., 78 E. Washington St., Chicago.

The Architects Small House Service Bureau was organized for the purpose of encouraging good architecture in cases where an architect's services might not otherwise be employed. Plans at low cost will be sent on approval, if desired. For further information see *Good Housekeeping*, March 1923, or address the Architects Small House Service Bureau, 1200 Second Ave., Minneapolis.

The National Conference of Social Work will hold its 50th anniversary meeting, Washington, D. C., May 16–23. General sessions will be held in the Arcade Auditorium, Park Road and 14th Street. The Hotel Washington will be conference headquarters.

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